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LYNXWORKS LETS VISUAL C++ DEVELOPERS TARGET LINUX WINDOWS APPLICATIONS GO CROSS-PLATFORM

BY EDWARD J. CORREIA

With an eye on the tremendous number of Visual C++ users, this month LynxWorks Inc. is scheduled to release VisualLynx, a set of tools that will permit Microsoft Visual C++ developers to create applications for devices running Linux. Although VisualLynx supports any Linux 2.2.12-compliant distribution, the company says it's targeted at embedded developers working on Linux-based devices, and it has been tested only with its own BlueCat Linux and

Lynx operating systems.

According to Inder Singh, CEO and chairman of LynxWorks (www.lynxworks.com), an important factor in the decision to embrace Visual C++ was popularity. "When you look at development environments, Microsoft Visual C++ is a very clear leader; it's being used by more programmers than anything else." Singh cited statistics indicating that Visual C++ holds a market share of between 70 percent and 80 percent.



Visual C++'s popularity prompted the tool set, says CEO Singh.

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Borland Brand Sees Revival With App Server

Inprise plans promotional blitz as strategy focuses on enterprise

BY ALAN ZEICHICK

It's been a tough year, with an aborted merger with Corel Corp., questions about its financial stability, and delays on its oft-promised Kylix development environment for Linux. Still, Inprise Corp. says that it's stronger than ever and is ready to put more emphasis on selling to its existing installed base, promoting its application server platform, and even continuing to revive the famous Borland brand name.

"We've cleaned up our organization over the past year," said Michael Rozlog, Inprise's chief technology architect. "We returned to profitability in the second quarter [of 2000]—a quarter ahead of schedule—the Corel merger is behind us, and we have \$244 million in the bank."

Inprise (www.inprise.com) is now organized into three groups: a Rapid Application Development business unit,

responsible for C++ Builder, Delphi and Kylix; a Java business unit, working on JBuilder; and the Enterprise business unit, which develops the company's Inprise Application Server, VisiBroker object request broker and AppCenter, a real-time distributed application management tool. JDataStore, a Java database, is also part of the Enterprise division. Our conversation with Rozlog focused on future developments to the Inprise Application Server.

Perhaps the most important change coming to the Application Server is that the company intends to actually promote the product. "Have you ever seen advertising for the Inprise Application Server? No," said Rozlog. "You've seen ads and promotion of JBuilder, and we include a developer's edition of Application Server with JBuilder. But that's been about it."

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Sitraka: A New Name, Focus

Former KL Group extending Java-based product line into mobile devices

BY DAVID RUBINSTEIN

It's not a pop singer, and it's not a breath freshener.

Sitraka Inc. is the new name for the KL Group Inc., which this week is not only changing its name, but also establishing two wholly owned divisions under the new Sitraka banner. Sitraka Software will continue to sell and service Java-based application development products under their current brands—JProbe, JClass and Deploy Director. Sitraka Mobility will expand the company's reach into wireless applications.

Larry Humphries, who



joined the KL Group (www.klgroup.com) in August, has been named president of Sitraka Software. Previously, Humphries was president of Canadian software development company Prior Data Sciences Ltd. for six years.

Humphries indicated Sitraka Software is in the process of creating server-side applications that could be announced in the next few months, coming on the heels of the recent partnership with IBM Corp. that will make Sitraka's JProbe development tools available on S/390 and other IBM platforms in the future. Also, he said a professional services

organization is being formed to help customers and users integrate the products into their systems and assist with custom application development, project management and IT education and training.

"We're picking up the baton from KL Group," Humphries said. "We'll expand the product lines but remain in the Java space."

The other division, Sitraka Mobility, will demonstrate two new products this week: ActionableAlerts and Remote Control. According to Dewaine Miller, vice president of marketing, Sitraka Mobility's goal is to "make enterprises more agile and competitive."

ActionableAlerts, Miller said, will allow mobile employees, partners and customers to

receive and act on business-critical information from any data source or application, any time, from anywhere. "Say a sales rep finds out a major customer needs a product that's not in inventory," he said. "The sales rep could get options—substitute another product, short-deliver with product on hand—and communicate back to the customer." A menu list would appear on his device, and he could choose the option and have it sent back to the shipping department to act on.



Sitraka Software will remain in the Java space, says new president Humphries.

Remote Control, Miller said, allows anyone with the required security clearance to get behind the enterprise's firewall to preview files on a server, including PowerPoint and PDF attachments, and redirect them to customers or partners via e-mail.

The product, he said, is targeted for the next generation of WAP-enabled phones and

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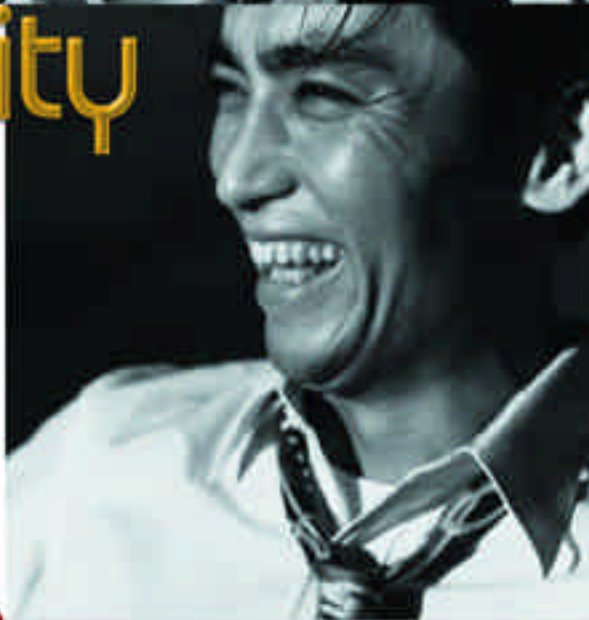




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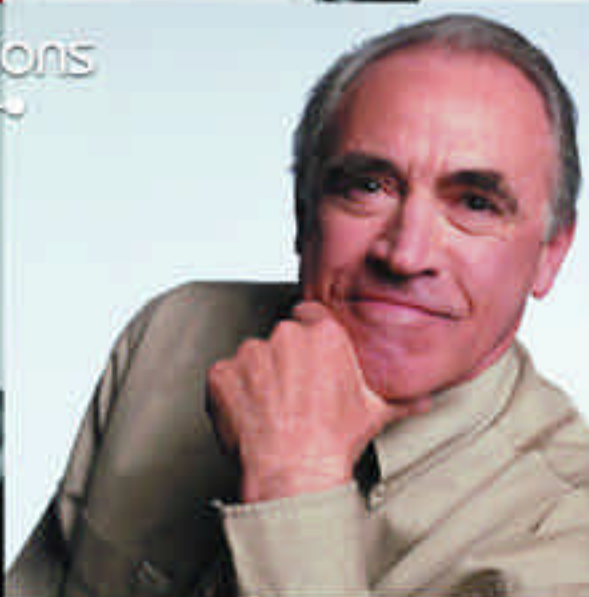
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GemStone/J 4.1 Adds Security, HotSpot

Future direction: Integration with Brokat's Twister, Blaze acquisition

BY ALAN ZEICHICK

When you think about GemStone/J, think about security, support of mobile clients and Brokat. That's the message coming from GemStone Systems Inc. about the incremental upgrade of its J2EE-based Enterprise JavaBean application server, GemStone/J 4.1.

It's been only one-and-a-half months since Brokat AG completed its acquisition of GemStone, and company officials say that they're still working out the integration of GemStone's technology with Brokat's Twister electronic-services platform. Plus, they're waiting for Brokat's other acquisition, that of artificial-intelligence developer Blaze Software Inc., to be completed.

Still, three elements have become clear: First, that this latest version of GemStone/J will be the last to carry the GemStone brand name. Second, that the application server will be the centerpiece of Brokat's next version of Twister. And third, that the new, improved Brokat will focus its efforts on the mobile commerce marketplace.

The new release, GemStone/J 4.1, is incremental and focuses on its enhanced public-key infrastructure (PKI) features, said company spokesman Eric Odell, pointing to its approval by security-services vendor Entrust Technology Inc. "Companies can implement commerce applications knowing that GemStone is fully compliant with PKI standards," said Odell, who added



The GemStone/J application server will be the centerpiece of Brokat's Twister Enterprise Edition.

that the company believes that GemStone/J is the first J2EE-based application server to announce PKI-based certificate authorization security.

To that end, GemStone/J 4.1 is certified Entrust Ready, said Odell, which means that Entrust says the application server is compatible with

Entrust's PKI 5.0.

Other changes in version 4.1 include the integration of Sun Microsystems Inc.'s HotSpot 2.0 beta Java Virtual Machine and support for the Enterprise JavaBeans Container Managed Persistence (EJB CMP) API. The update was due to begin shipping in early October, with a price of

\$4,950 per developer seat and \$4,950 per deployment CPU.

FROM GEMSTONE TO BROKAT

According to Odell, this release marks the end of the line for the GemStone name—but not for the GemStone/J application server. The next release, which he said is expected in December, will carry the name Brokat Twister Professional Edition, version 5.0. Odell wouldn't give specifics about version 5.0's features, but said that it was expected to be based on the J2EE version 1.3 and Enterprise JavaBeans 1.1 releases, and not on the forthcoming EJB 2.0.

The next step after that, he said, would be the January 2001 update of Brokat's primary application platform, currently known as Twister, but soon to be referred to as Twister Enterprise

Edition. Many details, Odell said, are still being worked out in Stuttgart, Germany—the headquarters of Brokat AG. More will be known after the final acquisition of Blaze Software. Blaze, formerly known as Neuron Data Inc., sells a Java-based suite called Advisor Solutions, which is a rule-based system that allows Web sites to be customized by both line-of-business managers and end users without programming.

Characterizing the integration of Brokat, GemStone, and Blaze as "more like the merger of three equals than an acquisition," Odell said that after the deals are complete, Blaze's offices in San Jose, Calif., will serve as the U.S. headquarters of Blaze, but that GemStone's Portland, Ore., office will still be home to that division's developers. ■

VIRTUAL ENTERPRISE 2.0: PROGRAMMING WITHOUT CODE

BY EDWARD J. CORREIA

Programming without programming. That is the promise of software tools company Intellium Corp. with the release last month of its Virtual Enterprise 2.0 UML-based J2EE development suite.

According to Jeanne Sebring, Intellium's chief technology officer, Virtual Enterprise (VE) is a revolutionary development environment that allows nonprogrammers to create fully functional intranet, B-to-B or B-to-C applications and never write a

single line of code. "It lets [development managers] focus on the business logic they want to implement," she said, "instead of deploying a team of C++ developers [for example] that then begins the lengthy process of analysis, development and implementation."

Sebring said Intellium (www.intellium.com) recently approached several development managers offering to train their programmers on VE and then turn them loose on a real project. The result

was a "25- to 35-time productivity improvement" compared with one manager's projected time line, she said. "We were able to train their people to use our product and have those people implement that same business functionality." In one case, she said, a project that was estimated to require 400 man-hours was implemented in just 11.

Applications created with VE can be deployed onto servers from BEA, Gemstone, IBM and iPlanet, Sebring said,

or onto VE/Server, Intellium's own application server.

She said VE's user interface is often mistaken for products like those from Rational or TogetherSoft. "The difference is that we are working entirely with visual modeling and UML notation. There is no Java or C++; there is no language other than the notation with UML."

According to the company, VE 2.0 pricing is determined on a case-by-case basis depending on the needs of the project. ■

Cache 4 Updates Object Database

With new features for server pages, XML, comes new pricing model

BY DAVID RUBINSTEIN

Next week, Intersystems Corp. is expected to release Cache 4, an upgrade to its object database. The new database not only adds new scripting and XML features, but also will be sold under a revised pricing scheme the company claims will better address the needs of Internet businesses.

Cache 4 adds Cache Server Pages, a legacy database gateway and XML capabilities to the product, which was first introduced in 1997 and accounts for about 90 percent

of Intersystems' business. Intersystems is the No. 3 object database company in the market, according to the latest IDC report, trailing Progress Software and Ardent, now part of Informix Corp.

The most important new feature is Cache Server Pages, said Paul Grabscheid, vice president of strategic planning at Intersystems (www.intersystems.com), because "the hardest thing to do is to get page designers working with programmers." By taking both a code-based and HTML tag-

based approach to building applications, he said, both sides can advance the application in terms they understand.

Another new feature, a legacy gateway, Grabscheid said, provides object access to data stored either in Cache or another database. Also, developers can install applications built in Cache and store them in other databases, and they can connect with existing data stored in those other databases.

Grabscheid said Cache 4 also includes an XML parser and multiple maps that allow

developers to control how an XML document and the Cache object relate to each other.

In the first part of next year, Intersystems expects to add sophisticated search capabilities that can yield real-time, up-to-date information. "We've taken the query process technology found in data warehouses and applied it to transactioning systems," Grabscheid explained. Also to be added is multilingual programming, with support for Basic and multiple scripting languages within Cache. "There is a huge population of programmers who can reuse the language they already know," he said, as they move client/server Visual Basic applications to a thin-client

Web environment without having to rewrite code or learn a new language.

Intersystems is making Cache 4 available on a per-transaction-request pricing basis, moving away from the per-server or per-CPU licensing models, which represented an overwhelming expense to new companies, Grabscheid said. It is targeted at companies that have started small and are growing, and whose revenue model is based on transactions. "If your load varies over time, you don't have to buy a license for the biggest peak you can imagine," he said. Under this model, he said, the revenue curve and request expense curve move together. ■



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Web Testing Tools Break Out of Windows GUI

Rational, Software Research also look to empower the less technical to solve performance problems

BY DOUGLAS FINLAY

Two new Web testing tools, from Rational Software Corp. and Software Research Inc., are said to provide relief to developers concerned with how well their sites perform when scaling them up to meet proposed business missions. In addition, these tools permit less-skilled IT professionals to identify and correct many performance problems without involving Web programmers.

Software Research's eValid is among a new class of Web testing tools that are browser-based. "Traditional Web site testing tools are Windows-centric, with a probe being placed inside the Windows event loop," said Edward Miller, the company's president. "This method has been vastly misleading in providing accurate information about response times and content validation of browsers." Windows-centric tools attempt to measure both browser responses and content from the Windows side, not the browser side, and thus distort browser accuracy, he claimed.

Miller said eValid checks for proper links, analyzes response times to page downloads and validates content. "Text, images and URLs are all measured" to ensure they are the proper contents being downloaded by users, he said. If an image is found (in a chart that records response times) to be loading too slowly according to a prede-



Detailed timing in this chart shows slow-loading pages quickly and graphically.

termined time, "Web developers can split the image into parts to speed up the image download, or put more memory into the buffer of a database, for example." He also said they could change the images from GIFs to JPGs to increase performance.

He said it was crucial for Web developers to have an accurate timing of page downloads due to the "click away" factor. "If it takes your home page a long time to download, potential customers will look to a competitor with a faster download time," he said.

Miller said eValid provides alarms for developers that go off if the response time of a page is not within the prescribed time. It also provides "deep testing" for sites that have variable content, for Java Applets and for ActiveX controls. eValid runs on Windows

9x and Windows NT/2000.

Software Research's eValid starts at \$950 for a standard license enabling a single browser session, and runs up to \$4,950 for an interactive license enabling an unlimited number of browser sessions. A demonstration version is available at www.e-valid.com.

Rational's SiteLoad is also Web-based to provide real-time accuracy in rendering pages. Jeff Schuster, director of performance testing products, said the tester was targeted to enable developers to load and stress the site prior to deploying on the Internet.

Like eValid, SiteLoad measures response time to detect slow-moving pages and correct the problem. "If you set an eight-second response requirement time, you can run a test

and a chart will show the average response time to hits to the page," he said. "You can then scale the tester up to test 100 users, then 200 users, then 300 users and get an average response time for each load."

As for accuracy of content, he said SiteLoad effectively analyzes real-world data that comes back from a request, comparing it with data that is prerequired to respond. "If even 404s (pages down) and 505s (Web site down) come back, then the testing is accurate because it is the most truthful response to a request," he said. "Unless you get a completely accurate idea of content response, you don't know what the quality issue is going to be."

Schuster said SiteLoad was designed to enable less technically skilled professionals such as Webmasters and business ana-

lysts to actually perform testing to determine where problems lie, if there are any. "Reports provide characterizations, such as CPU utilization and memory utilization, and to a lesser extent cache and I/O ratios." From these characterizations, the tester can then alert the developer on the findings, if necessary.

"Testers don't need to be experts to find the most common 25 problems with Web performance," said Schuster. "Expertise will be needed for only five of the most difficult problems," he said.

SiteLoad runs on Linux, Solaris and Windows, and is now available for up to 50 testers for free at www.rational.com.

The cost is \$15,000 for as many as 250 testers; \$30,000 for up to 1,000 testers; and \$150,000 for unlimited testers. ■

KaanBaan Releases XML Broker 1.0 to Beta

BY DOUGLAS FINLAY

KaanBaan Technologies Inc. has released beta version 1.0 of its XML Broker, an XML transaction server that converts XML into Enterprise JavaBeans for easier routing through the system. The transaction server also features a developer console to preconfigure components.

"The XML transaction server automates the process of communication between and among other companies' internal departments," said Tom Caravela, KaanBaan's director of sales and marketing. He said the transaction server, which supports the prerelease specification of EJB 2.0, accepts high volumes of XML requests from companies, parsing the information to determine the type of request it is—such as an invoice, purchase order or pricing request—converting it to EJB and dispersing it to the appropriate departments for processing. "Once the transaction has been received, a response is sent to the transaction server, converted back to XML and sent back to the company," Caravela said.

By utilizing EJB, Caravela said Java developers could work in an environment they are

familiar with, reducing both production time and costs. "The critical problem for developers is that XML code can be crude, repetitive and labor-intensive when walking through the steps to pull out relevant data from the code." By using EJB, documents can be processed without much developmental effort, he said.

Caravela said a developer console creates handlers, or session beans, for each type of document transaction. Four typical transactions requiring a handler are invoices, purchase orders, availability requests and pricing requests. "The console shows, using menus, where to enter in business logic, or code, to configure a specific handler. When a purchase order comes in, for example, it is sent to the purchase-order handler, where developers then simply walk through that preconfigured session, adding only skeletal code where necessary." The bean is then forwarded for further processing.

J2EE 1.3 prerelease-compliant, XML Broker runs on HP-UX, Linux, Solaris and Windows NT servers. XML Broker is available for free from www.kaanbaan.com. ■

NQL PREPARES CONTENT-MANAGEMENT PLATFORM

Building on the launch of its Network Query Language last April, NQL Inc.'s latest product is a content-management suite based on its language.

Content Anywhere, expected to begin shipping in the first quarter, is a Windows-based development platform and runtime application that runs on Windows NT/2000 servers, and that integrates with the Internet Information Server (IIS) Web server. According to the company, Content Anywhere takes data that's normally accessible only via Web browser, and dynamically repurposes it to offer a variety of other delivery options, allowing Web-extracted data to be inserted into mail messages, contact managers, spreadsheets and other applications.

According to David Pallmann, chief technologist of NQL (www.nqli.com), Content Anywhere runs as an Active Server Pages program inside of the IIS Web server. Content Anywhere will be programmable via a set of APIs accessible from Visual Basic and Java, as well as scripts written in the NQL language. NQL tags can also be placed in the HTML code, he said.

The Network Query Language, which is at the foundation of Content Anywhere, is an interpreted scripting language designed to offer a higher level of abstraction to gathering information from Web sites, databases and mainframes via terminal emulation, explained Pallmann.

An NQL application, said

Pallmann, can do in only a few statements what might take hundreds of lines of code to do in languages like Visual Basic, C++ or Java.

Pallmann also said that NQL's run-time environment, written in C++, runs only on Windows, but the company is developing a Java-based version of the NQL run-time that will run on Linux, Macintosh, Solaris and other environments that support Java.

Pricing for Content Anywhere has not yet been announced but will likely be in the \$200,000 to \$250,000 range, said Pallmann, explaining that this is the usual price range of online content providers' solutions. Each NQL language developer's seat is \$2,500. ■

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Eliminating Driver Error

NuMega DriverStudio 2.0 reported to reduce faults

BY DOUGLAS FINLAY

With conventional wisdom saying that a majority of client/server system crashes are caused by faulty device drivers rather than by faulty applications, Compuware Corp. claims its NuMega DriverStudio 2.0 can reduce device driver faults by providing a more reliable environment for developing them.

Among many performance enhancements to DriverStudio is its addition of kernel-mode driver debuggers, such as Driver WorkBench and Bounds Checker Driver Edition for the Windows 98 and Windows Millennium Edition. Previous editions of DriverStudio addressed debugging issues in the Windows NT/2000 operating systems.

"The Bounds Checker Driver Edition collects data on the interaction between the device

drivers and the operating-system kernel," said Peter Varhol, NuMega product manager (www.numega.com). The checker collects up to 10,000 types of interactions, from errors to API calls to data transfers, and displays the information on the WorkBench screen. "If there's a memory leak, it will find it; if there's a wrong API call, it will find it," he continued.

Also new in version 2.0 is a tool for rapidly creating skeletons for network drivers.

Still another new feature in 2.0 is a TrueTime Driver Edition, which analyzes driver performance, showing on screen where code performance bottlenecks lie and enabling programmers to recode to alleviate them.

Explaining that most system crashes are due to some fault or error within the device driver itself because applications

faults don't crash the whole system, Varhol said that this new feature would enable programmers to develop device drivers with a greater level of confidence. "Being able to visibly see on screen what is going on in the kernel and how the device driver is interacting with the kernel effectively ensures a more reliable device driver, which in turn ensures a more reliable system," he said.

Available since Oct. 1, NuMega DriverStudio 2.0 costs \$2,499. ■

XMLSPY 3.0 ADDS SCHEMA EDITOR, XSLT

Buoyed by the purchase of more than 10,000 licenses of its XMLSpy 3.0 editor by developers in little more than 13 weeks, Icon Information Systems introduced XMLSpy version 3.5 at XML World in Boston last month that adds an XML schema editor as well as an XSLT (Extensible Stylesheet Language Transformation) processor from Infoteria Corp.

The new schema editor supports the World Wide Web Consortium's XML Schema draft of last April, and enables live editing of the schema in graphical representation through a dynamic tree view. With the new editor, developers can create a visual representation of the content model of any schema while editing all major aspects of the schema directly.

Further, XMLSpy 3.5 contains a validating parser that the company claims supports Document Type Definitions (DTD), Document Content Description (DCD), XML-Data Reduced (XDR) and BizTalk.

Icon (www.xmlspy.com) also announced that it will add Infoteria's (www.infoteria.com) iXSLT processor to XMLSpy 3.5. The processor will ease the transformation of existing XML data into multiple formats such as HTML using XSL files.

XMLSpy 3.5 is expected to begin shipping the last week in October for \$149. Users of XMLSpy 3.0 are entitled to a free upgrade. ■

iConnector 2.0 Revs Up XML-Database Connections

Infoteria's converter adds Windows API

BY DOUGLAS FINLAY

Infoteria Corp., the Japanese company looking to make inroads into the American XML marketplace, launched version 2.0 of its iConnector product line that accesses database information and converts it into XML for use in client/server and n-tier applications.

New features in 2.0, announced at XML World in Boston in September, include compliance to the World Wide Web Consortium's Extensible Stylesheet Language Transformation (XSLT) version 1.0, and the addition of an API for Windows. The API increases iConnector's functionality to run as a Windows service, rather than as an executable launched from Windows. Running as a Windows service enables version 2.0 to call other services via a COM or Java API.

The update will support IBM's DB2, adding to support for Lotus Notes R5 and R4.6; Microsoft Access 2000 and 97; Microsoft SQL 7 and 6.5; and Oracle 8i, 8 and 7.

Todd Headrick, chief technical officer at Infoteria (www.infoteria.com), said that with

Oracle and other database makers adding XML support to databases, and with thousands of customers not planning to upgrade to new databases for the next few years, version 2.0 will enable them to transition into these databases at the back end from their own database and maintain XML functionality.

iConnector features the iRule Generator, a mapping utility enabling developers to pull information out of the database and map it to an XML tag name, or map data from the XML tag into the specific database table.

New XSLT features in iConnector include an executable version called the XSLT Invoker, enabling developers to use basic XML and XSLT style sheets and learn transformations. There are also COM components and DLLs so that programmers can embed functionality into their existing applications.

iConnector 2.0 is currently shipping and costs \$35,000 per CPU, with a license included for use with two more CPUs. ■

News Briefs

COMPANIES

MontaVista Software Inc. has received an equity investment from **Intel Capital**. The investment was made to ensure MontaVista's Linux operating system takes advantage of **Intel Corp.**'s StrongARM and IA-32 processor microarchitecture families, as well as the architectural benefits of the Intel XScale microarchitecture, the company's next-generation StrongARM technology. . . . **Allaire Corp.** has licensed the performance-enhancing REMIDI product from **Geodesic Systems Inc.** to include in its ColdFusion application server, which it claims will ramp up the performance and scalability of business-critical applications. . . . **QNX Software Systems Inc.** has licensed C and C++ libraries from **Dinkumware Ltd.** for use in the QNX real-time platform, which it says will provide developers with a high level of code portability and documentation. . . . **WebGain Inc.** will include **Macromedia Inc.**'s Dreamweaver UltraDev in its WebGain Studio development suite.



Dreamweaver already was included in the suite, but UltraDev adds the ability to visually create data-driven Web applications across **Sun Microsystems Inc.**'s Java Server Pages, **Microsoft Corp.**'s Active Server Pages and **Allaire Corp.**'s ColdFusion Markup Language. . . . **PeerLogic Inc.** and **Entrust Technologies Inc.** will co-market PeerLogic's LiveContent Directory data repository as part of the Entrust Solution for Trade Services bundle that allows banks and other financial institutions to develop products and services, such as authentication and authorization, for the Internet. . . . **VenturCom Inc.** has acquired **Phar Lap Software Inc.** to provide a Microsoft-oriented integrated development environment to its customers who have previously been served by traditional real-time operating systems. Similarly, Phar Lap customers will now be able to migrate their Win32-based dedicated systems to Windows CE, Windows NT Embedded and Windows 2000.

PRODUCTS

Pragmatic Software Co.'s new **Defect Tracker Version 3.0**, a subscription-based Web tracking software, is said to automatically generate defects from failed test cases; attach files to defects; automatically generate e-mail notifications; and chart function specifications in test cases. In addition, it permits team members to post and share documents for each project. A subscription is \$199 per month per company. . . . **SuSE Inc.** has announced availability of its **SuSE Linux 7.0** for Sun's SPARC architecture. The complete version is available for free at ftp.suse.com/pub/suse/sparc. . . . **Compuware Corp.** has added XML support to its **Uniface** development environment. It helps developers generate XML tags and valid Document Type Definitions on request, thus greatly alleviating the need to know XML coding. The price is \$7,600 per developer seat. . . . **Zero G Software Inc.** is shipping **Install Anywhere 3.5 Enterprise Edition**, its updated deployment tool that now is fully compatible with the prereleased Java 2 1.3 specification and supports all implementations of Linux. It costs \$1,995. . . . **Together Control Center 4.1**, an upgrade to **TogetherSoft Corp.**'s collaborative development platform that the company says provides deep integration from analysis to debugging, is available with new features, including an XML structure editor; improved compiling and testing capabilities; enhanced forward- and reverse-engineering of database schemas; and expanded EJB editing capabilities and deployment.



PEOPLE

Lee Self has been named vice president of strategic relationships at Interland Inc. As a former vice president of general business market management for Verizon Inc., Self was responsible for small-business market and channel strategies, which included strategies related to Interland. . . . **Tundra Semiconductor Corp.** has promoted COO **Jim Roche** to president. Roche founded Tundra in 1995 along with **Adam Chowaniec**, who retains the CEO title and continues in the role of developing strategic partnerships. . . . **Mark Zinn** has joined Metro Link Inc. as vice president of business development. Prior to joining Metro Link, Zinn, a professional investor, had guided Metro Link in its just-completed first round of venture capital funding with Linux Global Partners. ■

VSMake 1.0 Gives Developers What Microsoft Doesn't

Developers using Microsoft Visual Studio are wasting a lot of time.

That's the claim of Kinook Software, which has just introduced VSMake 1.0, a plug-in for Visual Studio that adds time-sav-

ing features to the popular IDE that eliminate much of the redundancy of the program build process, the company said.

According to Kyle Alons, founder and president of Kinook, the biggest advantage

that VSMake offers is its ability to save developers time. "It provides a way to automate your Visual Basic and Visual C++ builds, and do all the common things that developers will want to do to auto-

mate their build process."

Alons said VSMake adds a degree of build-time intelligence to Visual Studio, enabling it to determine which program components need rebuilding and which do not. The product also

enhances Visual Studio's project versioning and dependencies to determine correct build order, and gives programmers control of version numbering and increments. In addition, VSMake handles fundamental tasks like clearing read-only flags of target executables.

Kinook (www.kinook.com) also develops and markets Visual Build, a generic build automation tool that works with other IDEs.

VSMake 1.0 runs on all versions of Windows and is compatible with Visual Basic and Visual C++ versions 5.0 and 6.0. Pricing starts at \$49.95 per developer seat with volume pricing, site licensing and trial versions available. ■

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ULTRAGRID 1.0 OFFERS ACCESS TO DATA VIA WEB

With the Internet changing the nature of accessing and using information stored in databases, Sheridan Software Systems Inc. this week will begin to ship UltraGrid 1.0, an ActiveX component that allows developers to customize the presentation of data on a Web site.

"In any application where you want data displayed, a grid is a perfect metaphor," said Bob Wolf, president of Sheridan (www.shersoft.com). "It's especially good for hierarchical data."

UltraGrid 1.0 runs on a Windows 98 or 2000 client and can reach any OLE DB back end, Sheridan said, providing users with multiband views of hierarchical data, multicolumn sorting and drag-and-drop column ordering. The grid provides users with parent-child relationships—trees and branches—to drill deep into the data store, along with customization through shading and use of backgrounds to change the look of the grid.

For instance, if you're a retailer, he said, you can call up a list of all customers, then click on a customer and get a list of its orders, then click on a specific order to see all the goods in that order, with quantities, pricing and so on.

Over the next few years, Sheridan plans to release server-based versions of the data-display components for Java and C#, Wolf said.

UltraGrid 1.0 will sell for \$395. ■

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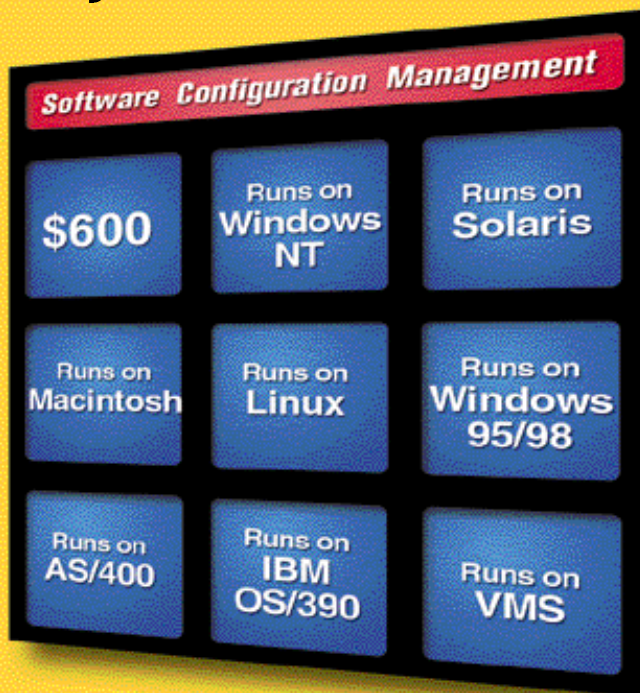
think of, and more. And Perforce provides the same interface on all platforms.

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Will the Real-Time Linux Please Stand Up?

Controversy grows over pure kernel's ability to deliver true hardware determinism

BY EDWARD J. CORREIA

Is it live, or is it Linux?

That question is at the core of a controversy kicked off by a recent announcement from Linux developer MontaVista Software Inc. that it had released the first fully pre-emptable pure Linux kernel capable of delivering hard real-time.

While some other vendors of real-time operating systems acknowledge MontaVista's solution is indeed the only one that incorporates the Linux kernel APIs, they insist that performance is sacrificed.

Jim Ready, president and CEO of MontaVista (www.mvista.com), insists his company is the only one to remain true to Linux. "We argue that there are no other real-time Linux developers; there are other people that have real-time operating systems that work with Linux, but in terms of real-time Linux, we're the only one," he said.

"Our quibble in all of these things," Ready continued, "is truth in advertising, which sepa-

rates all these problems from the problem of making Linux more real-time. What we've done is make Linux more real-time and continue on that path."

First to enter the fray was Lineo Inc. (www.lineo.com), which, a few days after MontaVista's September announcement, sent a letter to SD Times claiming that through its acquisition of real-time developer Zentropix, Lineo has been delivering hard real-time Linux for more than a year.

Embedix, Lineo's embedded Linux operating system, combines the real-time application interface (RTAI) with a proprietary kernel to provide real-time responsiveness.

But Dave Beal, Lineo's product marketing manager for real-time solutions, conceded the point. "Lineo solution isn't pure Linux; it uses a separate API and doesn't have access to Linux systems calls. However, that's the case with every kernel module." He characterized Lineo's real-time API as "not all

that different from POSIX."

While Lineo's solution may be fine for some things, Ready said it is far removed from actual real-time Linux. "That is not a bad strategy for certain conditions, but it isn't Linux, and it has none of the benefits of Linux," he said. "The simplest Linux program will not run" within Lineo's kernel, Ready added, and therefore will not have access to deterministic behavior—a fact that Beal could not deny. However, Beal pointed out that many system tasks do not require hard real-time responsiveness, and that they can coexist on a system with those that do.

MontaVista recognizes the need for such systems and occasionally mimics that model. Ready described situations under which it licenses RTLinux, which he calls a "good product with a bad name" because "it's not Linux; you're programming to another real-time kernel interface. And that's a very limited universe and solves a very limited set of problems." RTLinux

inserts a small kernel, he said, with very high performance and very limited functionality to handle very low interrupt-latency problems, which is not always what developers are looking for.

"It's easier to write a real-time kernel and run Linux as a task than it is to understand the complexities of the internals of Linux and safely and correctly do what we've done," said Ready, who himself developed Vertex, one of the earliest proprietary RTOSes. "If Microsoft ran Linux on top of Windows CE and called it real-time Linux, people would have a heart attack. The whole point of Linux is to be able to use Linux. The Holy Grail is improving Linux, not building another Vertex."

Lineo's Beal disagrees. "Sure, it's more convenient for a programmer to use the standard Linux API because there's nothing new to learn, but to do that you sacrifice performance. Although we do have a unique API, it's not rocket science."

One week after the news

from MontaVista, TimeSys Corp. (www.timesys.com) announced the release of enhancements to its Linux/RT distribution of Linux, which it said has been available since May, that make its kernel pre-emptable.

According to David Tannenbaum, marketing manager for TimeSys, Linux/RT and its "resource kernel" loadable module add a number of enhancements to the Linux scheduler, including 256 fixed priorities and a high-resolution timer. "With standard Linux," Tannenbaum explained, "you have a timer resolution of 10 milliseconds. With the resource kernel, you can get use of the hardware timer, which gives you 10-microsecond resolution or less."

But according to Ready, such enhancements again move away from Linux standards. "TimeSys claims some very advanced scheduling and other proprietary enhancements to Linux which [require] their own proprietary APIs," which he said equate with a lack of portability. ■

BSquare Delivers Software to Microsoft Devices

SNMP component pushes updates to CE, NT Embedded clients

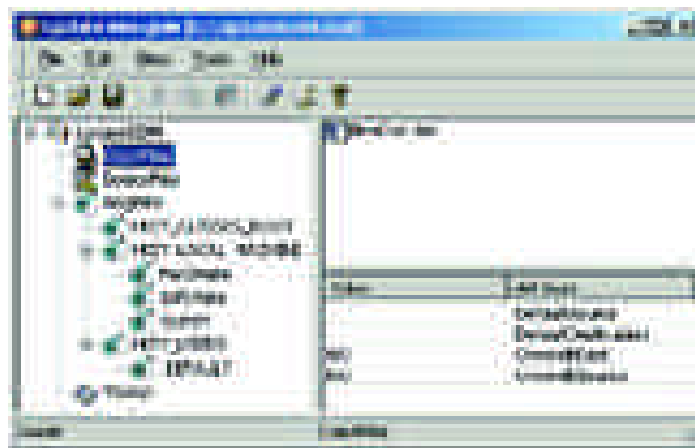
BY EDWARD J. CORREIA

Windows CE and NT Embedded devices may never know what hit them...or hit their installed software.

Embedded tools maker BSquare Corp. (www.bsquare.com) has released Remote Device Administrator, a file delivery and remote management system that can update software on target devices without user knowledge or intervention.

The three-part system consists of the RDA Client Management Toolkit, which contains XML-based agent software for client devices; RDA Server, an SNMP management and software deployment tool for Windows NT/2000 servers running Microsoft's Internet Information Server; and Update Designer, a visual development environment for creating device update packages.

The system is targeted at OEMs building devices for thin-client and consumer mass markets and at IT departments using Microsoft embedded sys-



Update Designer uses drag-and-drop to move files into proper branches.

tems in corporate workstations.

According to Macgille Lynde, product manager for the company's Internet appliance group, RDA builds on BSquare's Remote Updater, a system permitting Windows CE and Windows NT Embedded devices to run applications that pull file and registry updates from HTTP and FTP servers. The client software supports Windows CE 2.12 and higher and Windows NT Embedded 4.0.

"We think this is the first comprehensive, standards-based approach that works with thin clients, general and Internet appliances, and equally well with Windows CE or Windows NT Embedded," Lynde said. Update files can reside on any type of server running IP. The server also can be configured to issue alerts at certain device thresholds. For example, if files unexpectedly disappear from a device, Lynde said, the server can

be set to issue an alert or replace the missing file. Remote devices can be programmed to periodically check for new files, downloading as necessary.

According to Jeff McLeman, vice president of product development, administrative simplicity was a key design goal. "We're trying to get away from the problems and the frustrations people are experiencing with PCs and similar devices," he said, adding that devices based on embedded systems eliminate much of the complexity of file-based PCs, but require new tools. "With devices having simple user interfaces and no local volumes, there is a need for remote management," and device builders generally want little or no user involvement in the process of configuring, maintaining and upgrading devices.

Updates are delivered in an XML-based update package complete with installation instructions. Windows NT Embedded devices have the option of using the BSquare parser or

that supplied with IE 5.0, if present in the device. Additional Windows NT Embedded capabilities, McLeman said, include options for installation rollback and the ability to compare two devices and design a build based on the differences, including all files and registry entries.

Lynde said that administrators lacking XML know-how would not be left in the cold. "As we developed the update capability through our syntax-expanded XML, including a set of update commands, it became a little hard to handle authoring the XML to do that. So we developed Update Designer," which he described as a GUI with a tree control that permits dragging and dropping of update files into appropriate branches for adding and deleting files, and for creating registry entries, which "creates all the complex XML commands automatically and publishes them to the update file service."

For \$24,995, developers receive server software and client source code and agents. Per-device royalties are negotiated individually with each OEM sale. The license agreement permits OEMs to resell the server component. ■

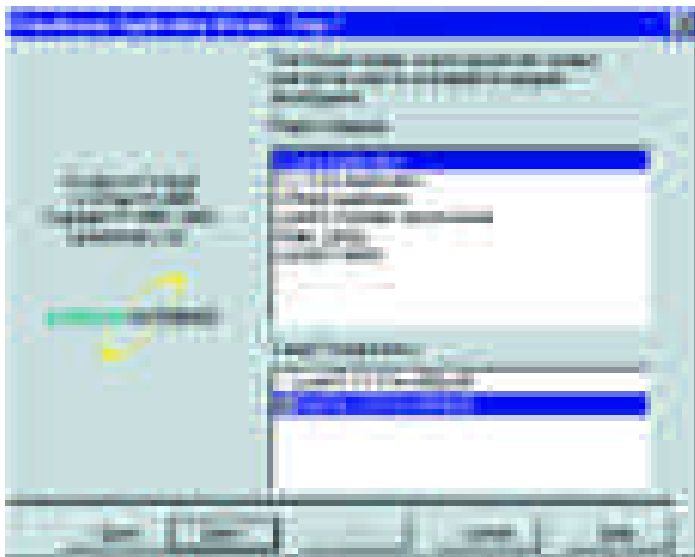
LYNXWORKS

◀ continued from page 1

Singh said his company took a different tack than competitors did with the development of the tools. "Most of the other players in the embedded business create their own development environment and tools, and that's a big part of their business," he said. "The down side of that is that as a programmer, you have to spend a lot of time coming up to speed on a proprietary environment," which could wreak havoc on project schedules and training budgets.

For development managers under pressure to move to Linux, the advantages seem clear. "If you're a programmer who's familiar with Microsoft [Visual C++], you can very easily without any learning curve start developing, running and debugging your Linux applications. You don't have to choose between running in Linux using a command line interface or the relatively limited number of Linux IDEs."

VisualLynx is implemented as a plug-in for Microsoft Visu-



Developers can target a Linux platform from a template.

al C++. It includes a Linux target wizard, Linux debugging tools and an interface for downloading completed applications to the target device. According to the company, VisualLynx will automatically compile, download and execute applications on the Linux target, and begin the debugger.

There is an ironic twist to LynxWork's strategy to hitch a ride on the Redmond giant. "We're building on top of Microsoft's resources; they have

more programmers working on their IDE that anyone else in the world. So instead of creating our own IDE, we're going to use Microsoft's software to help programmers use Linux instead of [Windows] NT."

VisualLynx runs on Windows-based workstations and can be used to target any standard Linux 2.2.12 distribution on any supported processor. The tools are scheduled for release at the end of October and will be priced at \$1,999. ■

CodeWarrior Will Run Java Embedded Server

PointBase Inc. has licensed its Embedded Server to Metrowerks Corp., which will incorporate the database into its CodeWarrior Java integrated development environment.

According to Greg Stoner, Metrowerks' vice president of marketing, the combination of the Pure Java-certified database with CodeWarrior would offer developers a small database footprint, a JDBC and SQL-compliant program that quickly creates and deploys programs while synchronizing them in mainframe, midrange and mobile database environments.

PointBase CEO Bruce Scott added that developers would get a significant productivity boost with the combination because they will be able to develop smart-device applications and their databases simultaneously.

Metrowerks (www.metrowerks.com) plans to ship an evaluation version by mid-December.

In other news, PointBase added NewMonics Inc. to its QuickPoint partner program for independent software vendors. Combining PointBase's Embedded Server with NewMonics' PERC JDK Version 1.1-compliant virtual machine is said to provide small footprints and efficient architectures to programmers for creating embedded Java device applications.

Initially targeted at telecommunications, data communications, industrial automation and the transportation industries, the Embedded Server integrated into the PERC virtual machine is available at www.newmonics.com.

PointBase also recently completed an E-Series round of financing for \$25 million, with NEC Corp. the lead investor. The investment is seen as support for PointBase's effort to penetrate emerging markets for multitiered data management and synchronization. ■



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C Verifier: Say Goodbye to Run-Time Errors

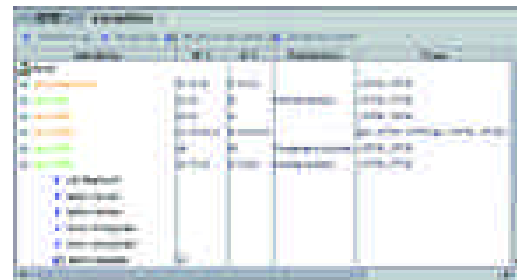
Dangling a carrot of application perfection, PolySpace Technologies has released C Verifier, a validation tool for Linux and Solaris that the company claims offers developers 100 percent run-time error protection.

The tool, which is designed to verify ANSI C source code, is targeted mainly at mission-critical embedded application developers, to help them identify areas of their code that could present the most danger to deterministic operations, such as processor halts, data corruption, uncontrolled external device commands and breaches in security prior to debugging and simulation phases.

The company claims that unlike static analysis and test case generators, C Verifier checks the properties of an application without actually run-

ning it. Using a technology the company calls abstract interpretation, C Verifier works on bounded regions of a program's variables, and evaluates every possible program execution case, identifying incorrect or unreachable code and potential

run-time errors without program execution. No disruption of established development methods or tools is required, the company said. C Verifier can be obtained at www.polyspace.com; pricing was not available at press time. ■



C Verifier checks properties without the app running.

ZUCOTTO DEMOS HDK

SAN JOSE, CALIF. — At the Embedded Systems Conference held here in September, Zucotto Wireless Inc. demonstrated the Xpressoboard Z1010, a hardware development toolkit for building Bluetooth-enabled devices based on Sun's CLDC and MIDP profiles of the J2ME specification.

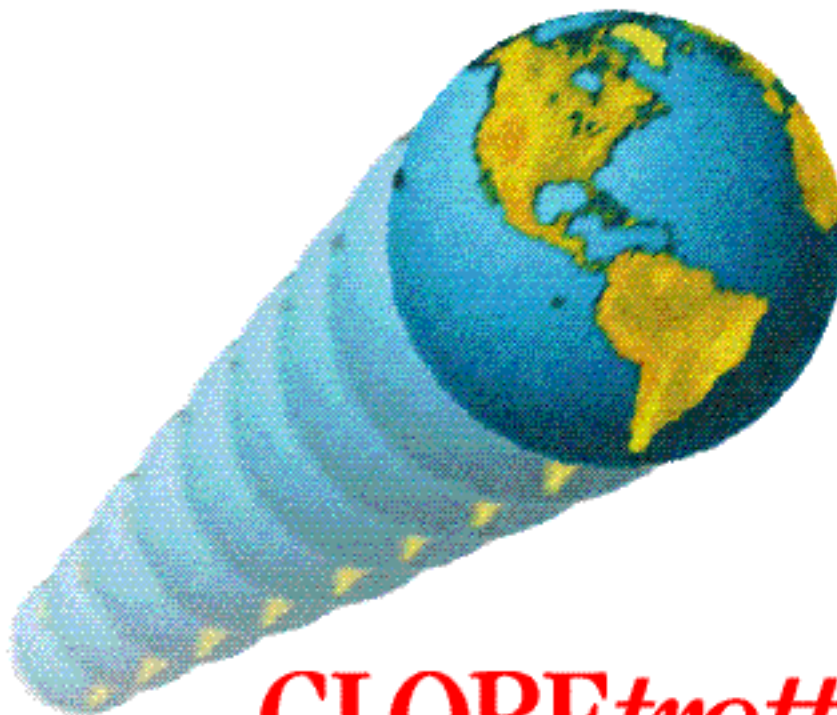
The HDK includes the Jackknife Development Suite, the company's newly released development environment.

The board is built around Zucotto's Xpresso Java Native Processor, which the company claims can execute Java applications as much as 20 times faster than a software JVM.

According to Stuart Creed, director of business development at Zucotto (www.zucotto.com), the performance advantages of processing Java in hardware are twofold. "If you put Java into a device, it benefits users because they can download and run applications and other useful stuff. And OEMs benefit by having more flexible software deployment options."

In addition, Creed said that the flexibility of the Xpresso processor also extends to the hardware, as it can be used alone or in conjunction with other processors or DSPs. ■

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EDITORIAL

It's About the Applications

The world of embedded software development isn't what it used to be.

Only a few years ago, events like CMP's Embedded Systems Conference were dominated by companies hawking device drivers, in-circuit emulators, C cross compilers, DSP cores and prototyping boards. Today, those products are still readily available, but the real action is in higher-level software development tools, comparable to those used by traditional software developers: integrated development environments, full-featured operating systems, even UML modeling tools. Huge by traditional embedded standards, those tools are the future of embedded software development.

One might attribute this change to the power of today's embedded microprocessors. The newest 32-bit processors and increased capacity of main memory can easily accommodate multiple abstraction layers and complex APIs, allowing developers to work at a higher level.

But the improvements to the hardware are only half the issue. The other half revolves around the application of embedded systems. Forget about microwave ovens, anti-lock brake controllers and other systems with hard real-time requirements, minimal user interfaces and even less external connectivity. That's not what's driving the embedded industry forward, and that's not what excites enterprise developers.

Today's leading-edge devices are *information* devices. They require a rich set of user interface options, with large graphical displays and pen or keyboard input. They

require an ever-richer set of networking protocols, both on the lowest level (wired or wireless Ethernet, IP and TCP/UDP) and a higher plane (SNMP, SMTP, HTTP, LDAP, Active Directory). On top of that, add complex, nondeterministic applications, and you've got more of a personal computer than an embedded system, as most hardware engineers would use the terms.

What does that mean for the software developer? Increasingly, it's that an information-oriented embedded system is developed as part of a distributed environment.

Connectivity and consistency are the messages that Microsoft is sending with its new emphasis on Windows-based embedded systems, promoting Windows CE 3.0 for mobile units and Windows NT Embedded for networked appliances: Use the same operating system (or at least the Win32 APIs) end-to-end, the company says.

Embedded Linux software vendors such as Lineo, MontaVista, Red Hat and TimeSys make the same compelling argument for using Linux on every part of the computing spectrum. Proprietary operating-system companies such as Microware and Wind River increasingly emphasize connectivity, not just the ease of bringing up new hardware using OS-9 or VxWorks.

But even that's only part of the story. The real difference is that embedded developers aren't as much building *devices* as enabling *applications*.

Not long ago, the application running on an embedded device was one of the smallest and easiest aspects of the project. Now, it's the key differentiator and the hardest part to create, test and deploy. Fortunately, those big, bloated, full-featured operating systems, IDEs and UML design tools will make that job easier. ■

LETTERS TO THE EDITOR

BACK IT UP WITH RESEARCH

In response to Oliver Rist's column ("The C# Mystery House," Sept. 15, page 31), it really saddens me when I see editorials that are not backed by research and qualitative information. Such editorials are merely sensationalistic and are a disservice to the reader. Based on a significant volume of publicly available information, one would be hard-pressed to believe C# was designed to compete with VB, or even offer an alternative to VB. C# was clearly designed to be a better, more productive C++. If you study C#, VB.NET, the .NET Framework and the Common Language Runtime (CLR), you'll find the following:

- C# and VB.NET are merely a thin veneer on top of the CLR. They both have practically identical features, and one's choice of C# vs. VB.NET would be based merely on syntax preference and past experience and little else. I hypothesize that if it were not for C++ developers' disdain for VB, Microsoft would not have created C# because VB.NET will do practically everything C# will do (except for a few minor

syntax operations like ++ and inline assignment). And C++ badly needs a more productive language.

- C# is not tied to Win32/64; it is tied to the CLR as is VB.NET, JScript.NET and VC++.NET with managed extensions.

- Those who have studied the CLR fully expect it to be ported to Linux, Solaris and the Mac, if not by Microsoft then by third parties, as Microsoft is documenting it completely. I attended a VB user group recently where this was a topic of heavy conversation.

- Microsoft is also documenting how to create languages that are on par with C#'s use of .NET. Numerous vendors have announced .NET versions of Perl, Eiffel, COBOL, etc.

- "No one knows"? Yes, they do; there is a lot of information available about C# and VB.NET, and it clearly points to a rich future for Visual Basic.

In summary, C# and VB.NET are both excellent languages and are not competitive. The .NET Framework and the CLR along with Visual Studio.NET are among the most elegant

development platforms ever created, and there is plenty of publicly available information for one to learn about them.

I predict it will have far and away more significant impact than Java or anything Microsoft has done previously. I think practically any developer who ignores any anti-Microsoft bias they may have and honestly evaluates it will feel the same.

Mike Schinkel

President
Xtras Inc.

SCREENING AT ITSQUARE

Thanks so much for the article on ITsquare ("Developers Vie for Global Work in New Marketplace," Sept 1, page 26). I enjoyed reading it and I think that you described Globalization Square quite well.

There are a few elements, however, that slightly misrepresent ITsquare's services. The first is where you write that developers come to the site, view RFPs and choose which projects to work on. This is not the case. We prescreen all of the vendors on our knowledgebase according to business experience, technical expertise and customer reference checking. Also, all of the projects on

our site are closed to the vendors on our knowledgebase and are open only to invited vendors (selected using our matching algorithm and client preference) that have signed our automated Non-Disclosure Agreement. Generally, a client chooses to invite between five and 15 of the selected vendors and has the opportunity to do Q & A with each vendor or with the group of vendors.

Greg Runyan, the analyst with whom you spoke, states that ITsquare "farms out temps." Again, this is not an accurate assessment of ITsquare's services. We help to connect clients in need of Web and software development with the most qualified, most appropriate vendors on our knowledgebase. Our vendors are only development firms worldwide; we do not invite freelancers or individual developers to be on our knowledgebase. He rightfully mentions vetting concerns. ITsquare has a stringent vendor screening process—all in our effort to provide only the highest level of quality service to our clients.

Holly H. Daee

Corporate Communications
ITSquare.com Inc.

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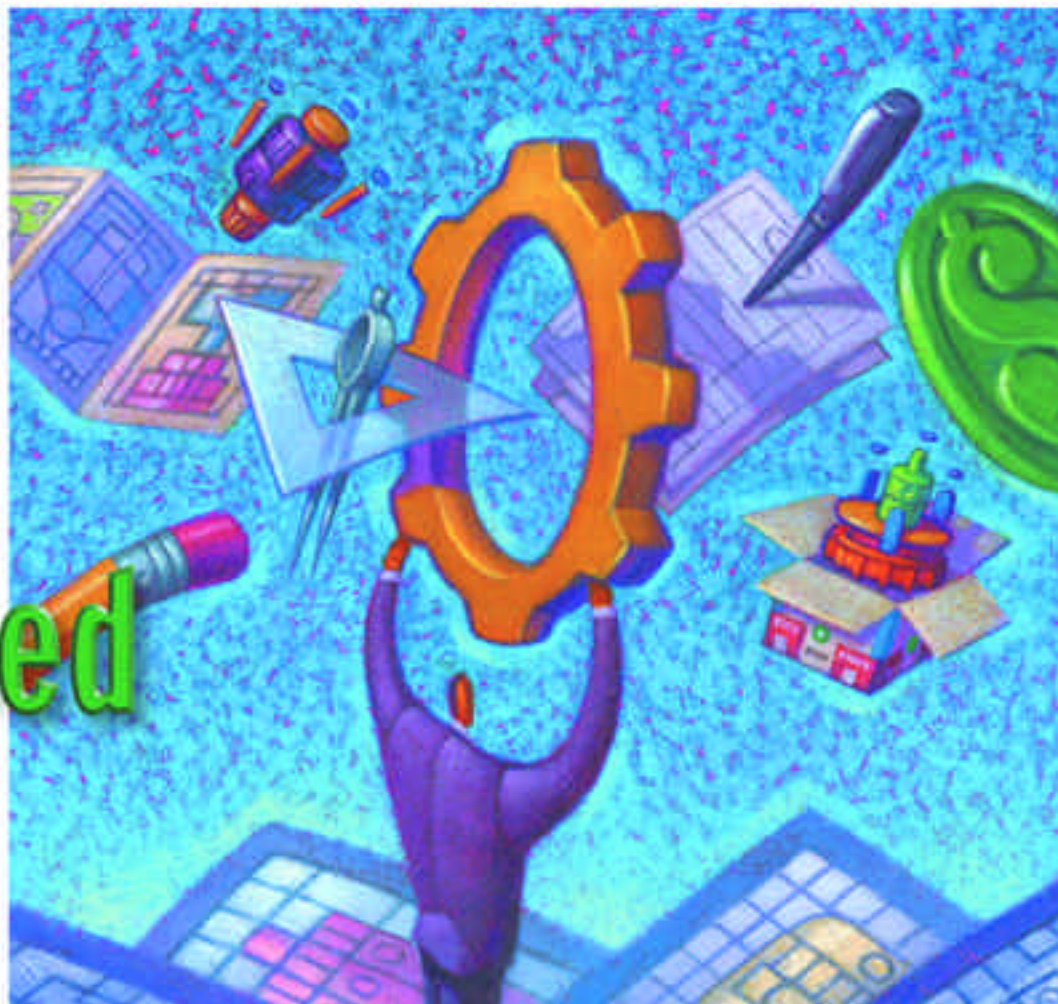


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The Best Practices Are Those That Are Used

Success in development requires that managers embrace tools, processes

BY DAVID RUBINSTEIN



The Internet is changing the way software is developed. Already, Web-based tools, platforms and portals have added a new dimension to the concept of collaborative application development.

Unfortunately, one thing hasn't changed—project management or, rather, the lack thereof.

It's not that tools for good project management don't exist. In fact, there are some 80 or 90 project-management tools and 40 or 50 cost-estimating tools, according to Capers Jones, a renowned authority in the field of project management. The problem is that managers and developers have not embraced them; fewer than 15 percent of

project managers use these tools, according to industry research.

"It is surprising that many project managers try to do plans and estimates manually," said Jones. "In my view, manual estimates for large systems constitute professional malpractice on the part of the project managers."

Jones is not alone in his harsh criticism of industry practices. "Project management is a matter of professional practice and personal discipline," said Dr. Karl Wieggers, principal consultant at Process Impact, a consultancy that focuses on software process improvement. "Software people talk a lot about project management; they'll price out many tools, buy a few and

use almost none. It's a sad commentary on the industry."

Part of the problem is that project management encompasses many tasks—planning, modeling, scheduling, requirements, costs, risk management. It can seem overwhelming, especially to managers and developers not trained in these areas. "Why do we assume that because someone is a programmer he can do cost estimates, work with a customer on requirements or do testing, without any training," Wieggers asked.

As for developers? They don't want to sit in planning meetings; they want to code. "That's the fun part," Wieggers said. "And, managers and customers perceive the only useful thing is

code. People aren't thinking in terms of repercussions."

So even as the Internet holds the promise of faster development, with more collaboration and access to tools, the success rate of those projects is doomed to languish, these experts believe, as long as good management practices remain unused.

REASONS FOR FAILURE

An oft-cited Standish Group report from 1995 that only 16 percent of all software development projects come in on time and within budget points to a host of reasons for project failure—unrealistic deadlines, project restarts and incomplete and changing requirements among them.

These are things that a project manager frequently cannot control. But it is the lack of planning surrounding things they can control that often means a project will not succeed, according to Wieggers.

Several major issues have emerged as holding the key to successful project development.

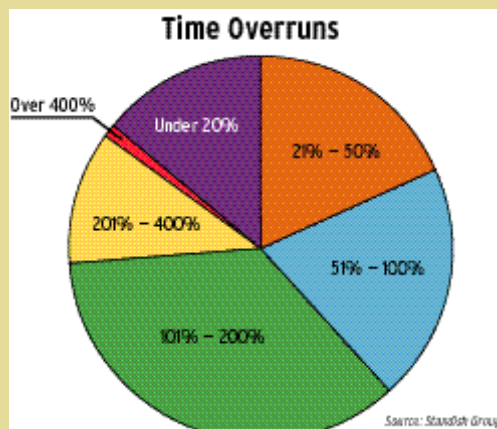
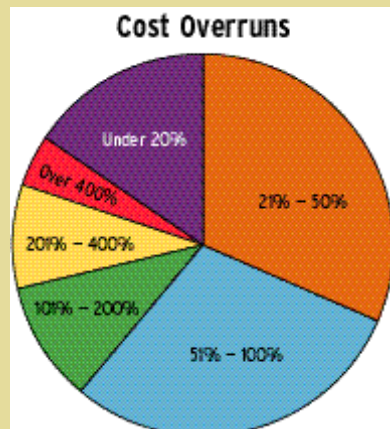
The first is the failure to take advantage of existing knowledge and tools. "Lots of projects get into trouble because plans aren't well formed," Jones said. As for the use of existing tools, Jones said, "many project managers don't understand

how to deploy these tools."

The second large hurdle to overcome is the allocation of roles, responsibilities and resources. "People often don't know what skills they need on a project, or whose job it is to do what," Wieggers said. This, he said, comes from a lack of true management training.

A third big issue is changing requirements. Jones often is called to testify in cases in which customers and developers have gone to court over a failed project. "In almost every case, unplanned requirements changes are in the middle of the dispute," he said. Jones recommends that requirements be drawn up jointly by representatives from the client and development team under the auspices of a trained moderator.

Paul Raymond, product manager of the DOORS requirements-management tool from Telelogic Inc. (which recently purchased Quality Systems and Software Inc., the originator of DOORS), identified requirements capturing and management as critical to a project's ultimate success. "You can't manage the changes unless you've clearly defined the task at the start of the project," he said. "When a change comes along, it's not a guess as to how the change affects the definition



One of the major causes of both time and cost overruns is restarts. For every 100 projects that start, there are 94 restarts. And some of those projects can have several restarts.

of what you're building."

Raymond said that too often, developers do not have a wide view of the user base, comparing software development to manufacturing a car. "If you're building a car, most people would think of the driver," he said. "But what about the guy who has to put the oil in? There are a whole range of users, and [development teams] must understand the full picture."

Another problem is that in some teams, there's a general lack of understanding of software development principles. Plus, when developers and managers are young, there's a good chance, said Wiegers, that they "have never gone through a Death March project; [they] can't judge the scope of a project and are unaware that there is a whole body of knowledge to tap into."

WEB TO THE RESCUE?

Some people think the use of the Internet for project development will lead to speedier development and more success. Alan Hecht, vice president of engineering and one of the founders of Mesa Systems Guild, believes the Internet will broaden the scope of project management.

"Now, when you think of pro-

ject management, you think of schedules, Gantt charts and resource allocation," he said. "[Throughout the] development life cycle, there are islands that will never talk to each other. Internet technology allows it all to be brought in—engineering, manufacturing, marketing—and visualized as necessary through a single Web browser."

Hecht makes the point that an Internet portal gets everyone on a project sharing information and collaborating on it. He cited the task of risk management, which he said now is done by engineering and is often not made known to everyone on the project. With a portal, everyone can be aware of management plans and contribute to them, he said.

Telelogic's Raymond said due to the nature of Web apps, which must be kept up-to-date and changed often, requirements management is more important than ever. "We see a trend toward moving fast but [the application] must be easily maintained and managed. This requires a thorough understanding of and control of the application."

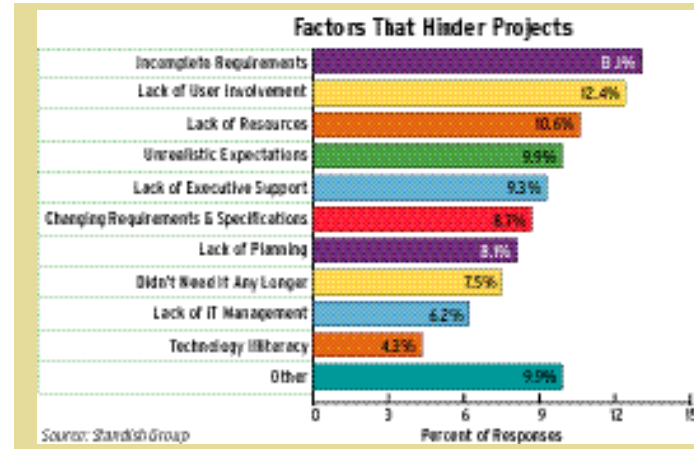
Others, however, see the rush to the Internet as negatively impacting the quality of applications being written. "A lot of peo-

ple want to get things done quickly and forget about quality," Wiegers said. "But you get one chance, maybe two at most, on the Web. I don't care if it's out there fast if it's worthless to me."

STEPS TO SUCCESS

There are steps that can be taken to ensure more quality in software development. Jones believes the industry should encourage colleges and universities to work project management into the computer-science curriculum. "MBA schools teach project management," Jones said. "In computer science, there is no academic training of project management."

Jones also cited two technolo-



gies that can help project managers: defect prevention, which could include UML, although Jones cautioned there is no empirical evidence to show that UML actually reduces the rate

that requirements change; and defect removal, which covers design and code inspections that he said are more than 85 percent effective in finding bugs.

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Tools Grow to Offer Real-Time Data

BY DAVID RUBINSTEIN

The trend toward collaborative development over the Internet, and the use of mobile devices for tracking and building applications, has led to the development of new project-management tools that are touted as being more dynamic, robust and up-to-the-minute than earlier generations of the tools.

Technology Builders Inc.

(www.tbi.com) has released Caliber-RM 3.0, a requirements management tool that it claims will allow the development team to create, edit and confirm project requirements using a browser interface. Another key new feature is called Live-Link Traceability, which the company says permits project teams to view direct and indirect links between requirements and

objects under source control. According to TBI, this integration of requirements management and SCM (software configuration management) tools helps teams understand the impact of requirements changes throughout the development life cycle. It is SCC (source code control) compliant, allowing for links between requirements and

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MORE PROJECTS, LESS EXPERIENCE

Dave Garrett is the CEO of Gantthead.com, an online community of IT project managers. Gantthead's business is to offer project managers a place to communicate and share experiences they are having throughout the life cycle process. The site profiles managers not only by who they are and what their preferences are, but also by what they're doing, and tries to match up managers working on the same types of projects.

In his previous life as a programmer, Garrett spent eight years with James Martin and Co., which, after receiving \$191 million in venture funding and moving into consulting, changed its name to Headstrong. Gantthead.com is a wholly owned subsidiary of Headstrong. He discussed the problems facing project managers and offered his perspective on the problems they face.

SD Times: Why do you think the failure rate of software development projects is so high?

Dave Garrett: One of the things we talk about is there

are more and more IT projects, and less experience among IT project managers. They just don't know the basics of project management. They haven't been brought up in an environment with standards and some level of discipline... New projects, particularly e-commerce applications, are much more iterative in nature. You do it once, check it, do it again... It's much more difficult to plan in the beginning and manage the changes as they come along. You need to be experienced to form a release strategy. We've done a lot of measurement of IT shops using standardized processes, and they don't have the engineering background.

What are the true costs of project failure?

A lot of people consider failure as not coming in on time and under budget. Often, [IT managers] will come to Gantthead.com after a failure and they're restarting the project. They learned lessons the first time and are coming back to do it right the next time. The impact is tough to mea-

sure. [Project failure] might not cause business failure, but it slows the business down in terms of gaining a competitive advantage.

Some people blame project failure on the lack of use of management tools. How do you see it?

It depends on the space you're talking about. We're actually seeing more use of Microsoft Project, but not the way it was intended to be used. Managers are creating plans and putting them on the wall, but not using the full e-mail version, sending out tasks to users and doing the detailed tracking the tools were meant to do. [Managers] take a shot at the project plan and then don't look at it again, or maybe once again, but they don't manage the project using the tools.

On the programmer side, there's a resistance. Programming has changed over time from being a task-oriented job to being a little more creative and more autonomous. Programmers are told, this is what we think we want, could you help me spec that and then pro-

Dave Garrett, Gantthead.com



gram it, versus here's the spec, go program it. Programmers resist the very precise. They say I don't know how long it will take because I don't know exactly what I'm programming. **So programmers are being asked to go beyond their traditional roles? Are project managers causing that or taking advantage of the trend?**

It's from above. If you look at job postings, you see programmer/analyst jobs. Companies want a little bit of business savvy and a little bit of programming skill. They'll keep one or two lead, hard-core programmers on to solve really big problems, and have quasi-business people doing a lot of the front-end coding. Everyone wants a business-driven solution, and the coders are just kind of doing their thing and making it happen.

How do you see technology helping project managers?

I see technology moving forward at an incredible pace. It'll be harder and harder for project managers to stay ahead of the technology curve and on

top of best practices. The speed at which projects are executed—I think it will become harder for managers in the future to keep up. There are more and more projects being done...all the analysts point to a trend where there are more, smaller projects, but only slightly smaller and the complexity is still there. The integration and interaction between available products is driving the complexity. What are all the products that go into a Web site? Analysis tools, electronic payments...how do they work together to create a value-add to their client?

What will help improve software development practices?

Talking to people. The kind of information [a manager] needs to exchange is dynamic in nature. There's no print publication that can tell you how applications will work together. So you build online communities to facilitate the connections.

—David Rubinstein

TOOLS

◀ continued from page 19

source code, documentation and help files, offering a reach beyond use cases and test cases to provide a more complete picture of the impact of changes, according to Darrell Kalichak, TBI's vice president of product

management. Kalichak said Caliber-RM will be able to integrate with many SCM tools and already has been tested with tools from Merant, Microsoft and Rational.

HMS Software Inc. (www.hmssoftware.com) is making available TimeControl Express, an application the company

claims is among the first to be written in the Java kilobyte virtual machine (KVM), which is a lightweight version of Java designed to work on handheld computers. The application is designed to help managers update their activity-based time sheets regardless of location. "By using this architecture, we

are able to use the same code on the Pocket PC, on other Palm OS devices and even on WAP-enabled mobile phones," said HSM president Chris Vanderluis. "The system has been designed to allow direct communication from the handheld device to the central TimeControl database via wireless Inter-

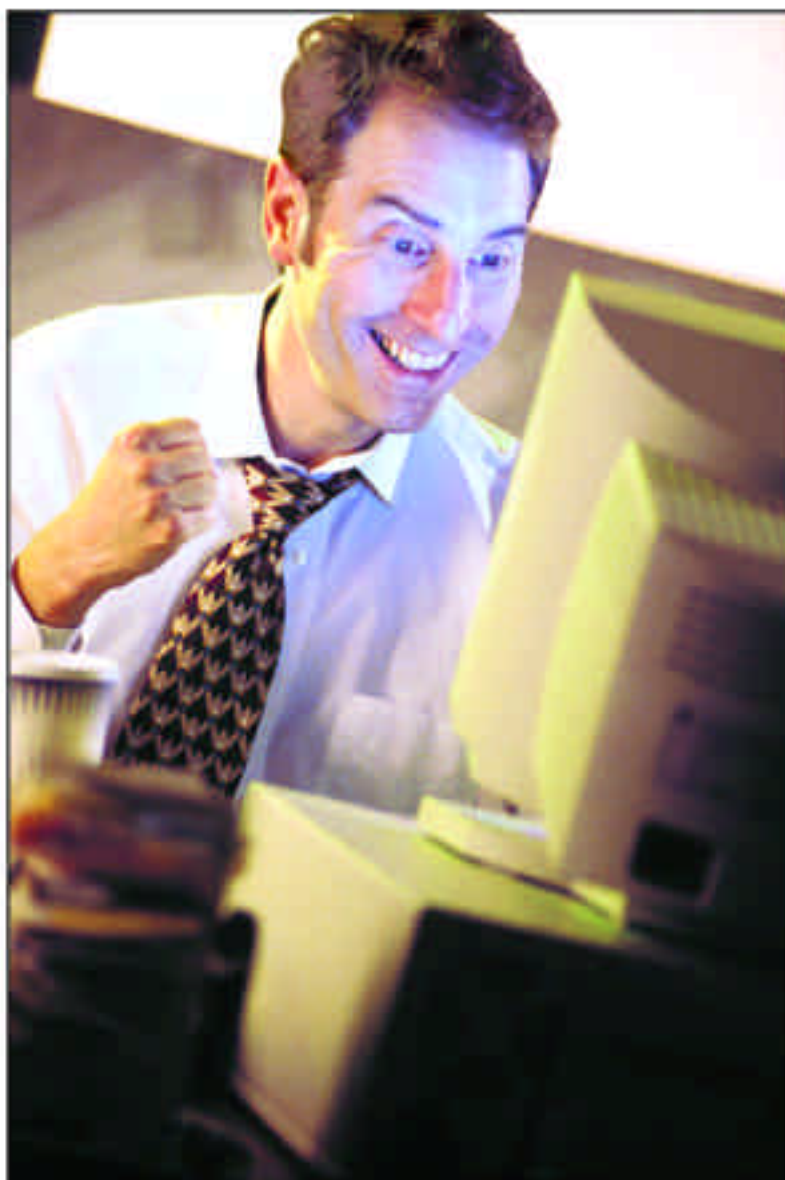
net connection if available."

TimeControl Express takes up 36KB, according to the company. The Java kernel is another 80KB, making for what it calls a tight design. TimeControl Express is priced at \$39.95.

A new type of knowledge management application from **The SpeedWork Co.** (www.speedwork.com), SpeedWork 2.5, works via task portals, which the company says provides task documents for specific tasks to be built step by step as the work process moves forward. SpeedWork runs on Lotus Notes and Domino using a Notes or browser client, and sells for between \$89.95 and \$149.95, depending upon the number of licenses.

Tenrox Corp. (www.tenrox.com) recently released VisualPM, an SDK that can integrate the company's new Projeca project-management suite with such third-party products as Microsoft Outlook and Project, Primavera Project Planner and others. The suite is a Web-based package including Office Timesheet, Office Expense, Projeca Express, Office Invoice and VisualPM, providing multi-site connectivity with real-time project data.

Another important issue to project managers is Capability Maturity Model (CMM) compliance, and **Pragma Systems Corp.** (www.pragmasystems.com) announced that its processMax 2 and processMax 3 are guaranteed to get organizations using the tools compliant with Level 2/Level 3 of the CMM by using a role-based approach to management. ■



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PRACTICES

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Wiegiers said there must be a shift from what he called "The Greatest Liar" syndrome, which means bosses will go from project manager to project manager until they find one who will promise to complete the project in the unrealistic time frame given. "There is a lack of honesty" on projects, he said. "We pretend we can estimate, know requirements and that risks aren't going to happen, and then we lie to each other."

What will it take, Wiegiers was asked, for more project managers to utilize the tools that exist? "It's got to come from pain," he said. "Until the level of pain gets too great, people won't think they have to look for a different way." ■

Mithral Enables Peer-to-Peer Client/Server

New SDK leverages distributed processing to tackle large projects

BY ALAN ZEICHICK
AND DOUGLAS FINLAY

One of the more interesting new computing paradigms is peer-to-peer distributed computing. This model turns traditional client/server on its head: A server holds the data for a large-scale computing project, broken down into bite-sized chunks called work units. Individual client computers "check out" work units from the server over the network, process them, and then check them back in to the server. The more clients taking part in the project, the faster the work gets done.

Seti@home, based at the University of California at Berkeley, is the best-known example of this methodology. The project's goal is to search for extraterrestrial intelligence by looking for unusual radio patterns coming from space. The Seti@home servers contain raw signal data from the Arecibo Observatory's radio telescope in Puerto Rico. This data is broken up into small units,

which must be processed to determine if there are interesting patterns in the radio data.

All of the processing is done by individual volunteers, who download a Seti@home application from <http://setiathome.ssl.berkeley.edu>, and configure it to run as a screen saver; the application checks a work unit from the Seti@home server, runs it through a complex mathematical process, and then returns the results to the Seti@home server. On average, each work unit takes about 18 hours for a PC to process. Since March 1999, 2,342,557 volunteers have processed 193,899,687 work units—the equivalent of 406,443 years of computer time. And all that using "spare" processing cycles. Alas, so far no intelligent signals have been found, but as a landmark experiment in distributed computing, Seti@home is a success.

Many other computing applications lend themselves to this distributed computing paradigm—but it's not easy to write

client and server applications that can take advantage of it. Tackling that problem is Mithral Communication and Design Inc.'s Client-Server SDK. The CS SDK, written in ANSI C with GNU assembly extensions, is based on Mithral founder and

CTO Adam Beberg's Cosm Project, a set of protocols and applications designed for collaborative computing using this design. According to Beberg, code developed using the SDK runs on Linux, Unix and Windows.

The CS SDK is available at

no charge for open-source or academic projects. Licensing for developers is \$6,000 for up to 50 CPUs; a renewal license after one year costs \$2,000 for up to 50 CPUs.

The CS SDK is currently being used in one publicly announced project, a protein-folding analysis system called Folding@Home sponsored by Stanford University (www.stanford.edu/group/pandegroup/Cosm). ■

REBOL TAKES COMMAND

The free REBOL programming language is going commercial, with a new edition from REBOL Technologies Inc. that offers access to external libraries, calling shell commands, external applications and database connectivity through ODBC.

Fans of the Relative Expression-Based Object Language have been using the REBOL scripting language to build Web applications since 1997. The free version of the machine-independent language, called REBOL/Core, allows developers to build graphical applications that can either run on the Web server, or be downloaded as small "reblets"

to a client to be run using a small run-time environment.

The benefit to using REBOL, according to the company, is that the built-in Internet protocols and support for common data types lets developers build Web applications without having to become familiar with low-level communications protocols and standards. The company claims that more than 300,000 developers have downloaded or received copies of REBOL, and that the language now supports 42 platforms, including Amiga, BeOS, Linux, MacOS, QNX, Windows 9x/NT/2000 and many flavors of Unix.

The commercial release, called REBOL/Command 1.0, is described by company founder and CTO Carl Sassenrath as a commercial extension to the REBOL/Core 2.3 development and run-time environment.

The new release is said to include the ability to integrate REBOL with platform-specific libraries, tools and third-party apps. The Windows version provides direct access to relational databases using ODBC calls, and the Unix version can communicate directly with Oracle.

REBOL/Command 1.0 currently supports Linux, Solaris and Windows, and is priced at \$249 per developer seat. It can be ordered from www.rebol.com. ■

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BORLAND

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Rozlog said that marketing for the Application Server will kick off by the end of the year, as well as an increased emphasis on explaining its benefits to existing Inprise customers. "We have some great success stories out there," he said, "but we're not making sure those customers purchase more products from us." The initial emphasis will be the installed base and "getting those relationships back together," said Rozlog.

The goal is ambitious: "We're shooting for the No. 3 spot next year," said Rozlog, after market leaders BEA Systems Inc. and IBM Corp. "We also want to be the most standards-compliant application server on the market. IBM is way behind on the [Java] specifications; that's why we're not able to support it with JBuilder 4. We do support [BEA's] WebLogic, because they've done a better job on the standards."

Still marketing is only half the challenge. The other half is continuing to advance the product—and the next revision is due at the end of this year.

BORLAND'S BACK

In December, the Inprise Application Server will be updated into Borland Application Server (BAS) 4.5. "I believe that over time, the Inprise name will just go away," said Rozlog, "but we don't want to do it all in one fell swoop. It's expensive to change a name."

As far as BAS itself, said Rozlog, the hottest new features will be its new data connectors. "The first new connector will support legacy systems," said Rozlog. "We've already had S/390 connectors for VisiBroker, but the new connectors will directly support CICS, IMS and MQ Series."

An even bigger deal, he said, is an arrangement with TIBCO Software Inc. to create an interface between BAS and TIBCO's TIB/Adapters and TIB/

Adapter SDKs. "This gives us instant access to 105 connectors of ERP, CRM and other applications," said Rozlog, "and gives TIBCO customers access to our application server."

Rozlog said that BAS 4.5 will also include integration with TogetherSoft LLC's Together/J team-oriented application design and modeling software. "That gives our developers forward, backward and simultaneous round-trip engineering," he said, adding "plus, because Together/J talks to Rational, now BAS will talk to Rational, too."

Another change in BAS will be partial support for the Enterprise JavaBeans 2.0 specifica-

tion, particularly with compatibility with the draft standards for message beans and container managed persistence (CMP).

One feature that's not expected in BAS 4.5 will be support for the Simple Object Access Protocol. "We want to support SOAP," said Rozlog. "Any time you have the W3C, Microsoft, Sun and IBM saying that something's a good thing, we know we have to support it. But there are issues with the protocol," he said, citing its lack of transactional context and versioning, no built-in security or encryption, and slow speed.

Pricing for the new application server hasn't been set, but

Rozlog hinted that it will be slightly higher than the current version's \$8,995 per CPU cost. "We believe that the new features will warrant the change," he said.

Further down the road, Rozlog said that Borland Application Server 5.0 should be ready some time in the second half of 2000. "We're waiting for the final approval of the J2EE 1.3 and EJB 2.0 specs," he said. Although he wouldn't provide much detail about that upgrade, he did say that it would feature integrated work-flow capabilities, as well as enhanced security for EJB and for other CORBA messaging services. ■

UDDI Works on E-Business Standard

BY DOUGLAS FINLAY

Still another standard is emerging that promises to lay the foundation for the way businesses transact commerce over Web services. Only this time, a wide cross section of American industry is throwing its weight behind it.

The Universal Description, Discovery and Integration (UDDI) Project kicked off last month in San Francisco, with a charter drawn up intended to address the challenges of adopting a universal business-to-business standard in the face of a multitude of technologies and standards available. UDDI (www.uddi.org) intends to meet the challenge head-on by first defining a platform-neutral set of specifications to enable busi-

nesses to describe themselves and indicate their preferred means of conducting e-commerce transactions.

Second, it aims to include the shared information in a globally distributed UDDI Business Registry, similar to current efforts from Biztalk.org and XML.org, to provide XML schemas to businesses that need them for building applications.

The registry will be a critical strategy to any future success of UDDI. Daryl Plummer, GartnerGroup Inc.'s vice president of Internet and e-business technologies, said that in the e-business world, a mechanism to locate software services and share those services is needed. He said the ability to find Web services such as those that

become available at a UDDI registry will help ease and speed e-business deployment for all businesses, ultimately opening the door to interoperability.

Specifications will be built using current core technologies such as TCP/IP, HTML and XML, and will be independent of any underlying platform.

Companies supporting the UDDI project include American Express Co., Andersen Consulting, Ariba Inc., Commerce One Inc., CrossWorld Software Inc., Extricity Software Inc., IBM Corp., Internet Capital Group, LoudCloud Inc., Microsoft Corp., Rational Software Corp., Sun Microsystems Inc., TIBCO Software Inc., Versata Inc., VeriSign Inc., Vertical Net Inc. and Webmethods Inc. ■

SITRAKA

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handheld computers. Both products are in development and should be released into beta in the next couple of months, he said.

Greg Kiessling, chairman and CEO of KL Group and now Sitraka Inc., and acting president of Sitraka Mobility,



Sitraka is in high-growth mode, says CEO Kiessling.

called the changes "a maturing of the KL Group." He said the company is in high-growth mode and is recruiting to fill about 40 positions, and will raise capital as needed.

Sitraka, by the way, is said to be Sanskrit for "cheetah." By definition, then, the newly divided company should be off and running. ■

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Here at Stormix we know that the **Linux** operating system is incredibly **stable**. We have a little informal contest to see how long a Linux system can run without needing to reboot. It's kind of an endurance race. We use Linux to run our servers, our **workstations** and our laptops. We work these systems hard, and system crashes are very, very rare. We've had some machines running for **months**. But something always happens to mess up our contest. Someone might move desks or want to install new hardware. John's computer was in the lead. Then he accidentally unplugged his machine. Whoops. This is a pretty **competitive** place to work, so John's employment with Stormix was subsequently terminated. (Only kidding ... John's computer was actually in second place.)

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NO, NO, .NET NET

People who don't know me well enough have been asking me to comment on the .NET strategy Microsoft unveiled in June. As you may recall, .NET is designed to position the Redmond giant as a Web company: that is, a company whose whole purpose in life is to deliver Web services of all kinds using a mix of open standards and Microsoft technologies.

This strategy supposedly repositions Microsoft from a vendor of operating systems, desktop utilities and development tools to a provider of Web and Internet services, Internet infrastructure and Web development tools. It is the macro view of what can be done by a company that's committed to the Web. If Sun wants to handle the micro view consisting of hardware and development languages, fine, Microsoft will compete there, but its real future is in services. This is the idea.

There is so much awry with this vision that it's difficult to figure out what part actually makes sense. Microsoft is a vendor of software. The services it offers are provided in support of that software. The sole exception is msn.com (and the Hotmail acquisition), which despite considerable trumpeting is very much an also-ran in a crowded field of also-rans.

The opportunity to provide new services based on new technologies is what Microsoft is hoping to communicate. The new technologies in theory are based on open Internet standards. The sole open standard mentioned in Microsoft's announcement is XML.

That Microsoft is committed to XML is hardly news; the company announced this very thing with the unveiling of the DNA strategy in 1999. The other "open" standards are neither open nor standards. They are technologies Microsoft will submit to standards bodies (notably ECMA); these technologies include the SOAP protocol and the newly announced C# language.

Although SOAP has much to commend it, nobody is using it today. In addition it's not clear that by the time ECMA rules on it, it will not already have been tweaked irreparably by Microsoft to be proprietary.

C# is a language that looks like C and C++ (just what we needed!) that is supposed to replace Java in the developer's arsenal. The language beta has just been released. So far it runs only on Windows. Representations that it will run on more

than Windows are vague and mumbled. The odds of developers abandoning Java to learn C#, which as yet has not delivered a single advantage over Java, are ridiculously small. The odds that C# will disappear into the annals of pointless languages are far greater. The final standard crucial to the success of .NET is COM+/DCOM (you pick the iteration), which is about as proprietary a technology as you can find.

The commitment to XML, however, shows the difficulty Microsoft will face. By attaching to a standard that is platform-independent, Microsoft puts itself in competition with a wide variety of vendors who are more imaginative and more technically savvy than the Redmondians. And when Microsoft has battled other vendors in contexts where it could not leverage its operating-system monopoly, Microsoft has not fared well.

Consider Visual J++ and Windows CE, among recent examples. And the tools the company has shipped to support open standards have never been particularly strong: FrontPage, Visual J++ and the like. In addition, they have always suffered from Microsoft's penchant to add its own proprietary extensions to the standard (FrontPage, Visual J++ again).

But let's say the company can com-

pete on the tools side and provide state-of-the-art products that fully embrace open standards and improve Net-oriented services and deployments. What about providing services?

The .NET announcement promised messaging, authentication, storage and software-delivery services. How is Microsoft going to provide all this—having never done so in the past? To this question, Microsoft offers no specifics.

Each of these services has established market leaders that Microsoft will have to face (and we saw how well it did that in the AOL Messenger spat). It need not prevail in every domain to succeed, but it has to be a player. And the only way to do that today is probably through acquisitions, which are dicey propositions given the general sentiment regarding Microsoft in the Department of Justice.

The net on the .NET initiative is that it is a reannouncement of DNA. It refers to the same technologies previously announced by Microsoft. And as to the services that will arise from these technologies, Microsoft has given no details as to how it expects to deliver them. Don't expect the haze to dissipate anytime soon. ■

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THE OPEN-SOURCE TOOLBOX

As a professional developer, you are no doubt content to pay for the tools you use to earn your living. Like carpenters, physicians and plumbers, programmers accomplish their work with specialized tools. Development tools are so powerful and affordable that only the most parsimonious of programmers could begrudge the price.

Yet the birth of a commercial marketplace of development tools is a recent phenomenon. Until a few years ago, PC programming tools were free, included in the purchase price along with the hardware and the operating system.

I was a professional PC programmer for seven years before I bought my first compiler. My Apple II and Radio Shack TRS-80 Model 100 had BASIC interpreters in ROM. The Kaypro 10 included a couple of compilers. Even the IBM PC came with primitive programming tools.

The commercial marketplace for PC development tools was born on Nov. 20, 1983, when Borland introduced its \$49.95 Turbo Pascal compiler for CP/M and MS-DOS. An avalanche of compilers, editors, debuggers and code libraries followed.

Consolidation and attrition have reduced the number of commercial programming tools; today the market consists of Microsoft and a few stubborn hangers-on. Judging by retail sales figures, the glory days of PC programming tools are over.

But sales figures don't tell the whole

story. The past two years have seen an explosion in language development. Programmers have never had a wider variety of top-quality languages to choose from. And most of them are free.

Consider **Squeak**. This open-source implementation of Smalltalk was created and maintained by the language's original authors. It runs on BeOS, DOS, Linux, MacOS, OS/2, Unix, Windows and other platforms. You can download the compiler and tools (with full source code), tutorials, sample projects and documentation at www.squeak.org.

Your developers may already use **Python**. Many implementations are available, most with full source code. This language has attracted a cultlike following because of its power and flexibility. Get started by visiting www.python.org.

You can grab the source code for **Perl** at www.perl.com/pub. Or try **Dylan** (www.gwydiondylan.org) or **Eiffel** (ftp.loria.fr/pub/loria/genielog/SmallEiffel). You can nab a **Common Lisp** implementation at www.cons.org/cmuc1 or an open-source **Pascal**—for AmigaOS, DOS, Linux, OS/2 and Windows—at www.freepascal.org.

Do you remember **Watcom C**? Watcom consistently beat Microsoft and Borland in performance benchmarks through the 1980s and 1990s. Sybase acquired Watcom somewhere along the way, and

now Watcom's C/C++ and FORTRAN compilers are available under an open-source license: www.openwatcom.org.

And if Perl and Common Lisp strike you as too mundane, the open-source world has got you covered with experimental and special-purpose languages. These development systems embody some of computer science's latest thinking, and messing around with them is educational and fun. As a bonus, many have proved to be practical in the field.

Unlambda's home can be found at www.eleves.ens.fr:8080/home/madore/programs/unlambda. According to its authors, the language "stands at the unexpected intersection of two marginal families of languages," namely functional languages (like Scheme) and obfuscated languages (think Intercal and Random). The language was deliberately built to make programming painful and difficult.

Claire, "a high-level functional and object-oriented language with advanced rule-processing capabilities," is available at www.ens.fr/~laburthe/claire.html. The Web site includes source code for a sample application that illustrates the use of search heuristics for combinatorial applications. Whatever that means.

E is "the secure distributed object platform and scripting language for writing capability-based smart contracts." The language interoperates with Java objects...this one looks pretty interesting.

I hope that in scratching the surface of available open-source and free languages

I've piqued your interest. For more options, take a look at some of these sites:

The **GNU Project Software Page** lists more than a dozen compilers distributed under GPL-compliant licenses. GNU C++, Pascal, Modula-2 and Common Lisp implementations are among the industry's best. Check them out at www.gnu.org/software/software.html.

ISP Idiom Consulting maintains a comprehensive, annotated list of free compilers at www.idiom.com/free-compilers. The list is "primarily aimed at developers rather than researchers," Idiom says, "and consists mainly of citations for production-quality systems."

At www.linuxlinks.com/Software/Programming/Languages, **Linux Links** lists hundreds of no-cost compilers and development tools. You'll find everything from ABC to YODL at this site.

Additional links to free programming languages can be found at auntfloyd.com/rob/comp/tools.html, www.appwatch.com/Linux/Library/60/view.html and www.llp.fu-berlin.de/isoft/F/1/index.shtml.

Some of today's most innovative, powerful and widely used languages are coming from the open-source community. Do yourself a favor: Download a new language and stretch your brain by applying it to a problem you face at work. You'll be a stronger programmer, and your team will have a new tool at its disposal. ■

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MIDDLEWARE WATCH



ANDREW BINSTOCK

OPEN SOURCE



J.D. HILDEBRAND

MAC OS X-CELLENT

The progenitor of the elevator pitches of the dot-com bubble is the Steve Jobs Reality Distortion Field. Jobs has an unparalleled ability to bend time, space and fundamental mechanical realities in order to eliminate all skepticism of the most outrageous pronouncements. At the original unveiling of the NeXT computer, I saw journalists literally run to the phone banks to file reports in a scene straight from a Howard Hawks movie. They feverishly babbled about how great it was—the video e-mail capabilities, the rewritable optical drive, the freedom from the floppy disk legacy...

The most remarkable thing about the Reality Distortion Field is how valuable it has proved. The NeXT never made a dent in the marketplace, but the Distortion Field extended all the way to Switzerland, where Tim Berners-Lee modestly claims to have invented the World Wide Web in order to justify the purchase of one of the machines. (In fact, he'd been working on hypertext systems since 1980.)

While the Reality Distortion Field focused on the interface of the NeXT, the real triumph of the NeXT was NeXTStep Developer, a direct manipulation developer tool that's only been

surpassed (and then only arguably) in the past few years. Berners-Lee says, "It was a great computing environment in general. I could do in a couple of months what would take more like a year on other platforms."

Jump forward a decade plus a schedule slip or two.

Apple Computer made the first public beta of MacOS X available on Sept. 13, 2000. I bet the average SD Times reader didn't even click through a link to see what it was about, but in not doing so, missed a watershed for software developers. OS X is going to be huge.

I'd only worked on two Macintoshes before this year—putting an inventory into Excel in 1985 and learning Smalltalk on a Macintosh FX machine. I've always felt the Macintosh, with its internals so hidden, was a computerphobe's machine—a machine for the rest of them. In May, though, I began porting a Java-based XML-over-HTTP messaging server from Solaris and Windows NT to MacOS X. Despite several bumps, I soon switched to OS X as my primary development machine.

Now, before you consider doing that yourself, I'll stress that no small part of

my decision was based on the realization that OS X was the most difficult environment for the effort. Java 2 is brand new to the Macintosh, and there were a slough of libraries and components about which all that could be said was "there's no reason to think they won't work."

And yes, there were considerable challenges that arose, technical problems that I dearly hope have been solved

(I haven't worked with the most recent drops of the operating system and tools), and other "cultural" problems involving the interface. Nevertheless, I can see a future in which I replace my workplace desktop, not with another Windows box nor even a Linux computer, but with a Macintosh.

Why? For one thing, OS X is built on top of NeXTStep and FreeBSD—just knowing there's a solid *nix kernel beneath the glitz makes me infinitely more comfortable with the system.

For another, NeXTStep Developer is alive and well in Cocoa, a Java (and Objective C, for you NeXT fans) application development environment for OS X.

Finally, in case you haven't noticed, for a Web developer, the Macintosh is a more important environment than Windows; your creative team is probably 80 percent or more Mac-based. By unifying

your entire Web development staff with a single operating system, endless opportunities for increased efficiency present themselves. At the very least, imagine what happens when the powerful tools of the open-source movement—CVS, Bugzilla/Scarab, Ant, etc.—are embraced by the designers. Process engineering for Web development is frustratingly immature in all areas, but doubly so when it comes to content assets.

OS X combines the favored development environments of the two central worker groups for the New Economy—developers who love *nix and creative staff who love GUIs. With Web workers now costing a company six figures annually in salary and support costs, even the Apple:Intel price:performance differential is becoming irrelevant; if a Macintosh can make you significantly more effective, who cares if the hardware costs a little more?

Will OS X be the system on which the next World Wide Web-size killer application is written? Yes, I think so. On the other hand, I've got a NeXT gathering dust in my garage. ■

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THE LITTLE IDE THAT FELL BY THE WAYSIDE

I believe we've been harping somewhat upon Microsoft's .NET strategy and the looming bogeyman of C#. Of course, in a column devoted solely to covering Microsoft's efforts in the software-development arena, that's somewhat inevitable given that this is all that Redmond is talking about lately. Fortunately, though, it's not all that's available.

Because my agonizing stint in the private sector involves application development, we've had ample chance to search around for a suitable coding tool set for our developers. This being an Internet development project, we're also hooked on Java and to some degree CORBA. Neither is much considered a Microsoft focus at this point. Or is it?

At first we didn't even consider Microsoft's Visual J++, mainly because someone had spread the rumor that the company wasn't selling it anymore due to its newfound darling with the musical notation for a name. Not true. Visual J++ is alive and well; it's just not being developed any longer, but will coast for a while until Redmond figures out whether its new strategy will work well enough to forsake Sun's brainchild entirely.

Even once we discovered that Visual J++ was still kicking, we still didn't take it very seriously. After all, the last time anyone saw it was during Java's initial heyday,

and then anyone with Pure Java allegiance was condemning it as Satan's Software Seduction. In short, Microsoft did what it has always done with development standards it didn't invent, namely tried to tie them so closely to its operating-system environment that no one would be able to use the standard if it wasn't running on Windows. In Visual J++'s case, Microsoft simply added so much wizard-oriented intelligence to the IDE that a monkey could have programmed Java—as long as that monkey was using and developing *solely* for Windows 95 or Windows NT. Since the whole point of Java was cross-platform neutrality, this naturally backfired on Redmond in most cases.

Guess what? We just finished checking out Visual J++ 6.0, and Microsoft has answered all our demands—it just didn't tell anyone! Did it hire marketing help away from Novell? At first blush, this seems the same Java integrated development environment of old. You'll find all the old intelligence and Oz-like wizard boxes that you'd expect. Except now, as long as you don't mind digging around through Microsoft's menu structure a little, there are actually switches in there to turn this stuff off. Even more surprising is that Visual J++ will actually warn you if

you're about to take a Redmond-only coding leap. That's right—the IDE will pop up a dialog box telling a coder that he is about to move into a single-platform application. Frankly, this stunned the heck out of me.

A competing tool we were looking at was the Enterprise Suite from WebGain. This thing was crammed so full of tools,

wizards and third-party components that the CDs actually bulged. The chief IDE here was VisualCafé, which WebGain purchased earlier this year from Symantec. Amazingly, we found more instances of Windows-only wizards and components under WebGain than we did in Visual J++.

And VisualCafé warns nobody of anything, which means you can actually wind up developing a Windows-only application easier under an old Symantec IDE than you can under an old Microsoft IDE. The world really is a strange place.

So what are you left with if you turn off Microsoft's intelligence? A fairly basic, no-frills IDE that runs pretty solidly under Windows NT/2000, has a standard debugger and—again, color us surprised—by far the fastest compiler times we saw out of the four tools we evaluated. But the hardcore Java gurus still didn't want to use it, and this seemed to have more to do with the logo on the box than with functionality initially. But then we looked closer.

Just when Redmond gave us a Java IDE we could really use, it stopped working on it. That means it's not J2EE certified, which is something mandated by most Java project leaders nowadays. You can still code that way if you like, but you won't find any help from the Redmonders. It also doesn't yet support JDK 1.3, and there are no plans for it to support any future JDK releases. You're also stuck developing only Java code in this no-frills IDE. By comparison, a similar no-frills package from Metrowerks allows development of any language on any operating system. Just write the code. And by turning off all the Windows-centric intelligence, you've also managed to take out most of the database connectivity hooks—again you can code by hand, but this is becoming tedious.

Overall, we won't wind up using Visual J++, even though it impressed us and carries one of the nicest price tags we've seen. As a stand-alone it's okay, but J2EE developing means integration with XML and HTML, and under Microsoft's banner that quickly becomes a maze of Win32-centric headaches. I just wanted to let Microsoft know that it's come closer than ever to satisfying my Java needs—and it doesn't even realize it. ■

Oliver Rist is technical director of Grand Central Network, an Internet consulting company. He can be reached at orist@grand-central.net.

WINDOWS WATCH



OLIVER RIST



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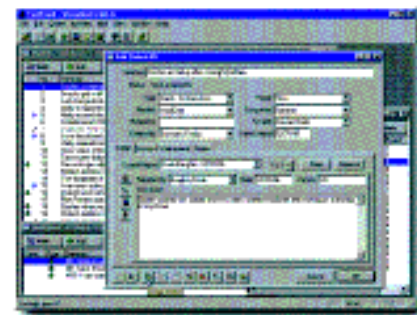
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SHIFTING GEARS TO MOVE FORWARD

Can moving from one highly competitive market into another put a company back on the road toward profitability and growth? In the case of Informix Corp., the answer is: Check back in about a year.

Informix has been a major player in the database market. Yet it has decided to augment—not abandon—its core business by shifting into the area of e-business infrastructure. Another database mainstay, Sybase, has done this with its portal initiative; Informix will stake its future on an as-yet unnamed e-business solutions company.

As the software development industry matures, and solid foundations are laid, companies that do not dominate in their segment find themselves scrambling for areas in which they can continue to grow. Look at all those Java application server companies that morphed into buzzword-laden e-business platforms—as an augmentation, not abandonment, of their core app-server business, mind you—when they saw BEA and IBM come to dominate that space. Messaging-system companies that found things getting a little tight across the middle, such as Iona Technologies Inc., also have repositioned to grab some room in the new e-business market. Suddenly, players are rushing into the new market as if it were a Saturday night at Harrah's and the pit boss is opening a \$5 craps table.

The drift at Informix began with the acquisition early this year of Ardent Software Inc., according to Mark Murphy, a research analyst at First Albany Corp., an equity research firm in New York City. "The acquisition had problems to us," he said. "Ardent wants to be agnostic to every database and operating

system. You can't tie it to one platform." Thus, it has languished. The best thing to come from the acquisition was Peter Gyenes, who took over as president and CEO of Informix after Jean-Yves Dexmier took the fall for the company's recent slide.

Murphy believes the database market ultimately will standardize on three winners—IBM, Microsoft and Oracle.

Every other database vendor, he said, will be squeezed out of their core business.

So Informix, which recently completed an unusual hat trick—three straight quarters of missing earnings estimates—and saw its stock price drop from a high of 21¼ in early April to 4½ last month, knew it had to make a move. In fact, it made several.

First, it named Gyenes, the acknowledged visionary at Informix, to the role of chairman of the board. He replaces Robert J. Finocchio, who resigned. Then, it consolidated what essentially were five business groups into two—the database business operations and solutions business operations. Jim Foy will head the database operation, while Peter Fiore will preside over the solutions operation.

"The announcement is a positive step," said First Albany's Murphy. "But there is a lot of work still to be done. This is not the kind of news that will immediately put the stock back on track."

The company's path back to profitability starts with the way Gyenes sees Informix, or, rather, each part of Informix. The database operation, to be known as Informix Software, will concentrate on its existing base of clients—some have called it almost a cultlike following—while looking for partners to expand the applications

available with the database, especially e-commerce and customer relationship management. Meanwhile, the new e-business company will provide platform-independent applications to integrate e-commerce, content management and Web publishing while supporting all leading databases—its own as well as those from IBM, Microsoft, Oracle and Sybase.

"It's like a train that has a strong engine but the caboose is full of lead," Murphy said. "They have to cut it loose. That's what Informix is doing; setting loose the part of the business that wants to go fast, and it's not the database division."

According to the company's reports, 85 percent of its business is accounted for in the database division, and 15 percent in the e-business solutions division. It expects the new company, which it says has 1,500 customers and 1,100 employees, to be profitable in 2001, while it reports Informix, the parent company, should break even in the final quarter of this year and be profitable in the first quarter of next year.

Gyenes and his crew certainly have faith. It was recently announced the company repurchased 6.4 million shares of its stock in the open market at \$5.27 per share, and it expects to have \$245 million in cash and be debt-free at the end of its third quarter.

But will it be able to compete better in the e-business space than it has recently in the database market?

"The company has some good technology and if it can execute, it can create economic value out of that technology," Murphy said. "You can't look at a large growth market and shy away just because there's a lot of competition. You've got to go in and fight the good fight."

Check back in about a year. ■

David Rubinstein is executive editor of SD Times.

MONEY WATCH



DAVID RUBINSTEIN

ON THE INSIDE

In my next life, I want to come back as an EVP at **Oracle Corp.** A whirlwind summer of exercising options has left that level of management flush with victory, not to mention cash. Charles Rozwat sold 50,000 options at \$81 on Aug. 4 after acquiring them at \$7.60. Gary Bloom exercised 100,000 options bought at \$7.55 per share and sold at \$77.46 on July 27. Edward Sanderson optioned 336,875 shares bought between \$7.50 and \$13.75 and sold between \$75 and \$78 on July 27. Jay Nussbaum exercised 120,000 shares bought at \$8.15 and sold at an average of about 477.50 on July 13 to July 27. Jeffrey Henley cashed in 500,000 shares purchased between 45 cents and \$2.08 and sold at \$75.61 on July 13—that is, a cool \$37.8 million. Score!

At **BEA Systems Inc.**, which also has enjoyed several recent quarters of positive earnings news, SVP Terence Dwyer sold 50,000 shares on Aug. 29 at \$60.21 per share, and division president Barbara J. Britton sold 25,577 shares at \$58.06 on Aug. 23.

In the wake of the announcement of its stock split, folks at **Sun Microsystems Inc.** are doing a little profit-taking. EVP John C. Shoemaker sold 72,000 shares at between \$109 and \$127 on Aug. 4 to Aug. 24. EVP Janpieter Scheerder sold 338,800 shares at between \$107 and \$127 on Aug. 30 to Aug. 31. VP John Marselle sold 100,000 shares at \$127.43 on Aug. 28, and VP James Judson sold 20,000 shares at between \$112 and \$127 on Aug. 10 to Aug. 28. VP Kevin Walsh sold 50,000 shares at \$127.53 on Aug. 31, while VP Stephen McGowan sold 57,000 shares at between \$113 and \$127 on Aug. 9 to Aug. 30. Also, VP Greg Papadopoulos sold 16,000 shares at \$125.75 on Aug. 30.



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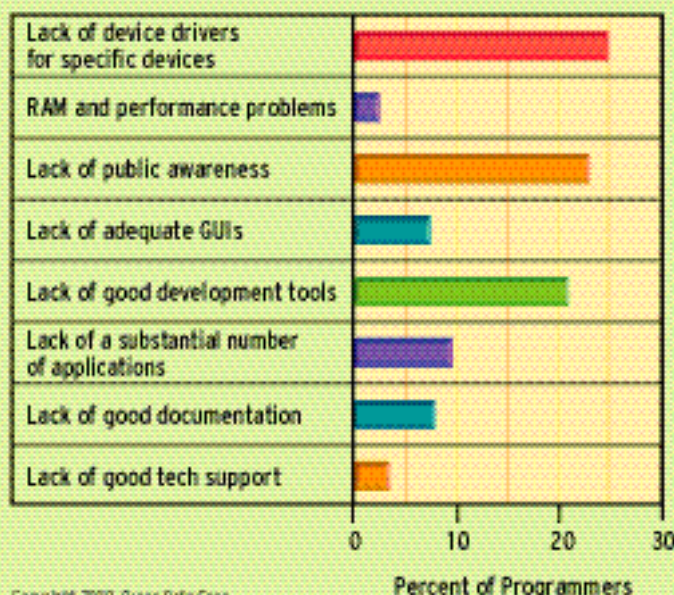
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What Are the Big Problems With Linux Development? EVANS DATA WATCH



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The majority of more than 300 Linux developers surveyed in August cited the lack of device drivers as the biggest obstacle to using Linux. This number may also reflect the growing interest in Linux as a platform for embedded systems, which requires good device-driver support for an increasing number of devices.

Another strong concern is a lack of good development tools. This has long been endemic to the Unix world, and while some Unix development tools are now being ported to Linux, these tend not to be well used. We have found that most Linux developers do not insist that the tools they use be open source. Also, the fact that many Linux users often pay \$100 or more for distributions of Linux that are free over the Internet, possibly because of the support but almost definitely because of the convenience, shows a willingness to pay some amount. This indicates there is a good market opportunity for medium-priced Linux tools provided the vendor can convince the Linux community of the value of its tools.

Tech support is not a significant concern for most developers surveyed, largely because most companies that sell Linux distributions are actually selling technical support.

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